REFERRAL OF A PROJECT FOR A DECISION ON THE NEED FOR ASSESSMENT UNDER THE *ENVIRONMENT EFFECTS ACT 1978*

REFERRAL FORM

The *Environment Effects Act 1978* provides that where proposed works may have a significant effect on the environment, either a proponent or a decision-maker may refer these works (or project) to the Minister for Planning for advice as to whether an Environment Effects Statement (EES) is required.

This Referral Form is designed to assist in the provision of relevant information in accordance with the Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978 (Seventh Edition, 2006). Where a decision-maker is referring a project, they should complete a Referral Form to the best of their ability, recognising that further information may need to be obtained from the proponent.

It will generally be useful for a proponent to discuss the preparation of a Referral with the Impact Assessment Unit (IAU) at the Department of Environment, Land, Water and Planning (DELWP) before submitting the Referral.

If a proponent believes that effective measures to address environmental risks are available, sufficient information could be provided in the Referral to substantiate this view. In contrast, if a proponent considers that further detailed environmental studies will be needed as part of project investigations, a more general description of potential effects and possible mitigation measures in the Referral may suffice.

In completing a Referral Form, the following should occur:

- Mark relevant boxes by changing the font colour of the 'cross' to black and provide additional information and explanation where requested.
- As a minimum, a brief response should be provided for each item in the Referral Form, with a more detailed response provided where the item is of particular relevance. Cross-references to sections or pages in supporting documents should also be provided. Information need only be provided once in the Referral Form, although relevant cross-referencing should be included.
- Responses should honestly reflect the potential for adverse environmental effects. A Referral will only be accepted for processing once IAU is satisfied that it has been completed appropriately.
- Potentially significant effects should be described in sufficient detail for a reasonable conclusion to be drawn on whether the project could pose a significant risk to environmental assets. Responses should include:
    - a brief description of potential changes or risks to environmental assets resulting from the project;
    - available information on the likelihood and significance of such changes;
    - the sources and accuracy of this information, and associated uncertainties.
- Any attachments, maps and supporting reports should be provided in a secure folder with the Referral Form.
- A USB copy of all documents will be needed, especially if the size of electronic documents may cause email difficulties. **Individual documents should not exceed 10MB as they will be published on the Department's website.**

- A completed form would normally be between 15 and 30 pages in length. Responses should not be constrained by the size of the text boxes provided. Text boxes should be extended to allow for an appropriate level of detail.
- The form should be completed in MS Word and not handwritten.

The party referring a project should submit a covering letter to the Minister for Planning together with a completed Referral Form, attaching supporting reports and other information that may be relevant. This should be sent to:

Postal address	Couriers
Minister for Planning	**Minister for Planning**
PO Box 500	**Level 16, 8 Nicholson Street**
EAST MELBOURNE VIC 8002	**EAST MELBOURNE VIC 3002**

In addition to the submission of the hardcopy to the Minister, separate submission of an electronic copy of the Referral via email to ees.referrals@delwp.vic.gov.au is required. This will assist the timely processing of a referral.

PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

1. Information on proponent and person making Referral

Name of Proponent:	**AusNet Transmission Group Pty Ltd (AusNet Services) and the commercial division of AusNet Services: Mondo**
Authorised person for proponent: **Position:** **Postal address:** **Email address** **Phone number:** **Facsimile number:**	Francisco Vizcaino Project Director L26, 2 Southbank Boulevard, Southbank, Vic, 3006 francisco1.vizcaino@ausnetservices.com.au 0449 789 946 Not applicable
Person who prepared Referral: **Position:** **Organisation:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Tara Horsnell Planning and Environment Lead AusNet Transmission Group Pty Ltd L26, 2 Southbank Boulevard, Southbank, Vic, 3006 tara.horsnell@ausnetservices.com.au 0419 527 529 Not applicable
Available industry & environmental expertise: (areas of 'in-house' expertise & consultancy firms engaged for project)	AusNet Services and Mondo AusNet Transmission Group Pty Ltd (AusNet Services) is a diversified Australian energy infrastructure business. It owns and operates the Victorian electricity transmission network, one of five electricity distribution networks, and one of three gas distribution networks in Victoria. AusNet Services delivers safe and reliable gas and electricity to more than 1.4 million customers across Victoria. Mondo is AusNet Services' commercial energy business and is building a portfolio of projects valued at almost one billion dollars. Mondo provides a range of energy and infrastructure products and services to business, government, communities and households. Mondo has a growing portfolio of high voltage electricity transmission assets connecting an increasing number of wind farms. This includes the construction of high voltage assets for six wind farms across Victoria, connection assets, many kilometres of transmission lines, three purpose-built

	terminal stations, as well as the Ballarat Energy Storage System (battery) owned by AusNet Services. Mondo has in-house planning and environmental impact expertise including a Planning and Environmental Lead, responsible for Project managing the environmental assessments for the Project. Jacobs Group (Australia) Pty Ltd Jacobs is a large full services consultancy who are supporting Mondo in providing a comprehensive suite of technical consulting services to support the Western Victorian Transmission Network Project (WVTNP). These services include planning and approvals, design, cultural heritage, ecology, landscape and visual, hydrology, geotechnical, survey and spatial amongst other services.

2. Project – brief outline

Project title:

Western Victorian Transmission Network Project (WVTNP)

Project location: (describe location with AMG coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context)

The Area of Interest, as shown in the overview plan in Attachment A, is located in central and western Victoria. The Area of Interest has been developed to identify viable alignments for new overhead electricity transmission lines between Sydenham in Melbourne's north-west and Bulgana (north of Ararat) in Victoria's west, via a new terminal station to the north of Ballarat. Viable alignments identified within the Area of Interest will be subject to a planning and environment assessment to identify a preferred alignment that will undergo further assessment and design for approval. Attachment B provides a more focussed detailed map set which shows the Area of Interest for 220kV and 500kV corridors, as well as the investigation area for the new terminal station to the north of Ballarat and the investigation area for new North Sydenham Terminal Station.

From the west, the Area of Interest includes an area north of and adjacent to the existing Bulgana to Waubra 220kV transmission line. From the existing Waubra Terminal Station, the area of interest widens to connect into a new terminal station at a site to be determined to the north of Ballarat (an area of investigation for a terminal station site is identified by hatching on Attachment A). From the new terminal station, a 500kV transmission line must run on an east-west axis to a new North Sydenham Terminal Station to the north of Hillside and immediately next to the existing Sydenham Terminal Station in Melbourne's west.

Short project description (few sentences)**:**

The WVTNP involves the construction of approximately 190km of transmission line, including a double-circuit 500kV line on towers between a new North Sydenham Terminal Station and a new terminal station to the north of Ballarat and a 220kV line on towers from the new terminal station north of Ballarat that runs in an east west direction to Waubra and Bulgana. Minor upgrades are also required to the existing terminal stations at Ballarat and Elaine.

The Project will unlock renewable energy resources in western Victoria, helping to deliver affordable, clean energy to Victorians, help diversify the energy supply mix to the market, facilitate energy projects that support Victoria's renewable energy targets and create jobs across the life of the Project.

3. Project description

Aim/objectives of the project (what is its purpose / intended to achieve?):

To increase transmission network capacity, address current limitations in the western Victoria transmission network and facilitate the efficient connection of new renewable electricity generation in western Victoria into the National Electricity Market (NEM).

Background/rationale of project (describe the context / basis for the proposal, eg. for siting):

As Victoria transitions from a reliance on coal generators in the Latrobe Valley to a diverse mix of energy supply, including renewable energy generators in western Victoria, the transmission network capacity must be increased to bring the energy generated in western Victoria into the major residential, commercial and industrial load centres (Metropolitan Melbourne).

Western Victoria is an attractive location for new generation projects due to the quality of its renewable energy resources (namely wind and solar), however existing electrical infrastructure in the area is insufficient to allow existing and new proposed generators to operate at full capacity.

In December 2018, the Australian Energy Market Operator (AEMO) estimated that around 2,000 megawatts (MW) of new renewable generation will be built in western Victoria by the end of 2020, with a further 5,000MW of new generation constructed in the region by 2025. The current electricity network in western Victoria is congested and failure to undertake the Project will impact electricity prices in the long term.

If network capacity in western Victoria is not addressed, this could lead to a loss of renewable investment to other areas with lower quality resources as renewable energy companies look to areas across the network where they can more easily connect to a reliable network that allows them to operate at a higher capacity and maximise their return on investment. This may result in inefficiencies impacting electricity prices to consumers over the long term. Investment in the transmission infrastructure facilitates investment in renewables in Victoria, which in turn creates jobs and has a positive impact on Victoria's ability to efficiently meet the Victorian Renewable Energy Target (VRET).

Main components of the project (nature, siting & approx. dimensions; attach A4/A3 plan(s) of site layout if available):

- Construction and use of a new North Sydenham (500kV high voltage) Terminal Station.
- Construction and use of a new terminal station (500kV high voltage) to the north of Ballarat.
- Construction and use of approximately 115km of new overhead double circuit 220kV. transmission line between the new terminal station to the north of Ballarat and the existing Bulgana Terminal Station. It is anticipated that this transmission line will run parallel in part with the existing Ballarat to Bulgana 220kV transmission line.
- Construction and use of approximately 75km of new overhead double circuit 500kV high voltage transmission line between the new North Sydenham Terminal Station and the new terminal station to the north of Ballarat.

- Upgrade works at the existing Bulgana Terminal Station: Installation of 220kV switchgear in the existing switchyard and installation of equipment in control building. Installation of steel structure for cut-in of new lines from tower structure (outside the Bulgana Terminal Station.
- Upgrade works at the existing Ballarat Terminal Station: Extend control building, install new structures and modify drainage within existing terminal station boundaries. Installation of 220kV switchgear in the existing switchyard and installation of secondary and communication equipment in control building.
- Upgrade works at the existing Elaine Terminal Station: Installation of 220kV permanent and temporary steel structures, cut-in of No.2 Moorabool-Ballarat line outside the existing terminal station boundaries. Installation of steel structure for cut-in of existing lines from tower structure. Installation of secondary and communication equipment in control building.

Ancillary components of the project (eg. upgraded access roads, new high-pressure gas pipeline; off-site resource processing):

Construction of access tracks to transmission line tower locations.

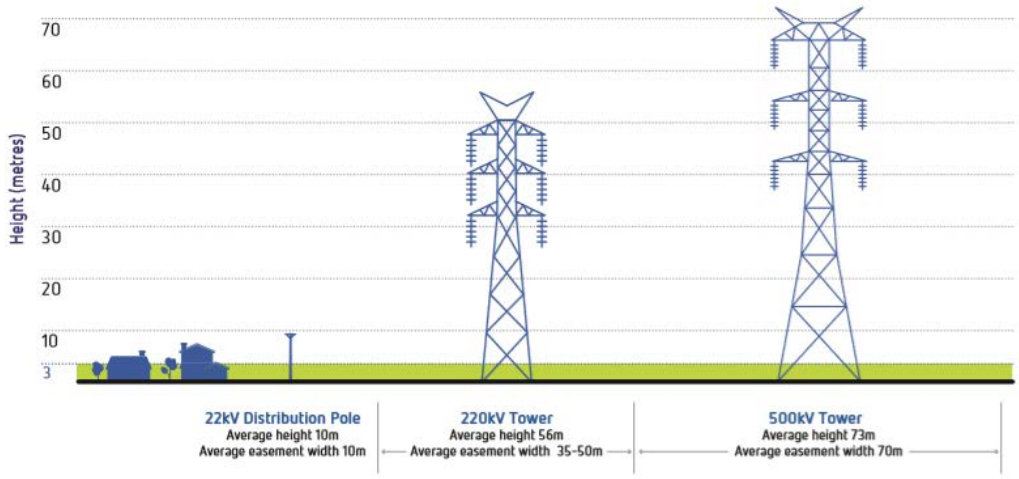
Key construction activities:

- Removal, destruction and lopping of native and non-native vegetation
- Construction and use of access tracks for construction and/or maintenance
- Construction and carrying out of earthworks to create bunds, mounds and landscaping
- Construction of temporary hard stand areas and excavation of foundations
- Construction of construction laydown areas
- Construction of terminal stations and operations and maintenance buildings
- Installation of towers and overhead powerlines and other ancillary electricity infrastructure
- Progressive rehabilitation of the sites and landscaping
- The Project is assessing whether there are suitable existing commercial operations where material can be sourced locally or regionally as well as exploring whether borrow pits could be used to acquire some or all of the material from private land near to the Project, while also avoiding and minimising impacts. If all material cannot be sourced from existing operations and there is a need to explore borrow pits on private land, permits and approvals required for establishing new quarry/borrow sites or expanding existing sites will be sought.
- Concrete batching facilities if concrete cannot be secured commercially.

Key operational activities:

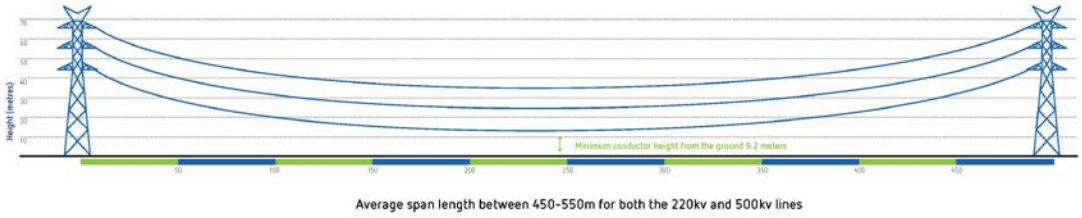
AusNet Services will build, own, operate and maintain the new infrastructure required for this Project. The average tower height for 220kV and 500kV lines transmission lines is 56m and 73m respectively (Figure 1). The towers associated with 220kV and 500kV are typically spaced between 450m-550m apart (Figure 2).

Figure 1: Average tower height and easement widths



(Image source: AusNet Services, 2020)

Figure 2: Average span length between towers



(Image source: AusNet Services, 2020)

Transmission line easements are required to enable the use (operation and maintenance) of transmission line infrastructure. Easements will include all land required for ongoing maintenance and operations including access tracks.

The average easement width for the 220kV line between the Bulgana and Waubra Terminal Stations is expected to be 35m. The average easement width from the Waubra Terminal Station to the new terminal station north of Ballarat is expected to be 50m. A reduced easement width of 35m can be achieved between the Bulgana and Waubra Terminal Stations because the new line can partially be sited within the existing easement if the line can run parallel and directly adjacent to the existing 220kV line.

The average easement width for the 500kV double-circuit transmission line is approximately 70m (Figure 1). The width of easements varies according to a number of parameters including topography, tower height and tower spacing. In some instances, it may be preferable to have a larger span between towers to avoid sensitive areas or values however larger spans result in wider easements. Larger easement widths may also be required in areas adjacent to tall trees to mitigate the risk of damage to transmission lines from falling trees.

The dimensions of the easements are designed to provide electrical clearances including maintaining a clearance of 4.6m or 6.4m (220kV and 500kV respectively) from the lines to any

object in any direction and a horizontal clearance of 14.8m or 28m (220kV and 500kV respectively) from the centreline to allow for sway in the line. These clearances are required under the *Electricity Safety (Electric Line Clearance) Regulations 2015*.

Ownership of the land subject to the easement remains with the landowner. Grazing, cropping and other agricultural practices can continue on the land in the easement underneath the transmission lines, however other uses may be restricted. For a summary of the types of on-going land uses that can continue as well as those that are prohibited in an easement refer to: https://www.ausnetservices.com.au/-/media/Files/AusNet/Residential-Electricity/Safety/A-guide-to-living-with-transmission-line-easements.ashx?la=en

To ensure the safety of landowners and the community, AusNet Services has statutory authority to enter the land for ongoing operations and maintenance.

Terminal stations will contain electrical equipment, switchgear (circuit breaker, isolators etc), transformers and shunt reactors, racks (for lines to land on) and buildings (to house secondary equipment) and will be remotely monitored from an offsite control room.

Key decommissioning activities (if applicable):

Not applicable

Is the project an element or stage in a larger project?

☒ **No** ☐ Yes If yes, please describe: the overall project strategy for delivery of all stages and components; the concept design for the overall project; and the intended scheduling of the design and development of project stages).

Is the project related to any other past, current or mooted proposals in the region?

☒ **No** ☐ Yes If yes, please identify related proposals

4. Proposed Alternatives

The areas excluded from consideration for a transmission line corridor include:

- Where planning scheme zones provide for sensitive land uses such as Residential Zones, Public Use Zones for education and community purposes and the Public Conservation and Resource Zone.
- For ecological reasons, such as public land reserved for conservation purposes including National Parks
- For heritage reasons, such as land within sites on the Victorian Heritage Register.

Urban areas of Melbourne's Western Growth Area, Bacchus Marsh, Ballan, Gordon, Ballarat and Creswick and the public land reserves comprising Lerderderg State Park, Wombat State Forest, Werribee Gorge State Park, and Creswick Regional Park will be avoided to the extent practicable. In highly constrained areas where there are social and environmental impacts a balance must be found to minimise these impacts to the extent practicable.

A corridor that extended north of the existing Area of Interest and north of the Lerderderg State Park, Wombat State Forest and Daylesford Regional Park, in the vicinity of Woodend, Tylden, Glenlyon and Smeaton, was initially considered but not pursued due to the considerable extra

length of transmission line required to avoid the large forested areas and the consequent significant increase in construction cost, losses of power in transmission during operation and the number of properties impacted.

The new 220kV transmission line is proposed to run alongside and adjacent to the existing 220kV line between the Bulgana and Waubra Terminal Stations, which is shown on the maps in Attachment B. The towers will be positioned as close to the existing towers as allowable under the *Electricity Safety (Electric Line Clearance) Regulations 2015.* Where possible, each tower will be positioned in step with the existing towers to maintain the same span distance between the towers. Positioning the proposed infrastructure adjacent to the existing infrastructure is likely to minimise environmental and social impacts. The Area of Interest between the Bulgana and Waubra Terminal Stations will allow for possible minor alignment variations to avoid localised constraints. From the Waubra Terminal Station, the area broadens to connect to the north and southern extent of an investigation area for a new terminal station, at a site to be determined to the north of Ballarat. From this new terminal station, a 500kV transmission line will run on a west-east axis to the new North Sydenham Terminal Station.

Alternatives within the Area of Interest that remain subject to further investigation are briefly described in the next section.

Brief description of key alternatives to be further investigated (if known)**:**

The alternative corridors for the proposed 220kV transmission line from the Waubra Terminal Station that connects into a new terminal station north of Ballarat are:

- A northern corridor that runs in a west to east direction north of and parallel to West Berry Road, north of the towns of Allendale and Kingston, to the locality of Blampied to the new terminal station investigation area to the north of Ballarat.
- A southern corridor that runs to the south of Creswick Regional Park and the town of Creswick and north of the towns of Mount Rowan and Miners Rest.

The proposed 500kV transmission line between the new North Sydenham Terminal Station and the new terminal station to the north of Ballarat, includes two broad corridors to the north and south of Melbourne's Western Growth Area and the Bacchus Marsh and Ballan urban areas.

In the northern area, a corridor between the Lerderderg State Park and north of Bacchus Marsh is being investigated.

In the southern area, a corridor south of Werribee Gorge State Park, Bacchus Marsh, Maddingley and Bacchus Marsh Airfield is being investigated.

Southern options need to head in a northerly direction to connect to the new North Sydenham Terminal Station. There are four sub-options under consideration that provide this south-north connection to the new North Sydenham Terminal Station:

- A corridor that follows the proposed Outer Metropolitan Ring Road (OMR/E6) and Railway alignment which runs through the Growth Area parallel with Plumpton Road and Troups Road South.
- A corridor that partially uses the easement of the existing 500kV transmission line from the Moorabool Terminal Station to the Sydenham Terminal Station.
- A corridor that consist of rural land between Long Forest Nature Conservation Reserve and Melton.

- A corridor that consists of rural land between Long Forest Nature Conservation Reserve and Bacchus Marsh.

5. Proposed exclusions

Statement of reasons for the proposed exclusion of any ancillary activities or further project stages from the scope of the project for assessment:

Works that are not considered capable of having a significant effect on the environment include:

- Works associated with investigating, testing and surveying land associated with designing the Project
- Service proving to identify existing third-party assets
- Works at existing terminal stations where no planning permit is required.

6. Project implementation

Implementing organisation (ultimately responsible for project, ie. not contractor)**:**

AusNet Services

Implementation timeframe:

Construction anticipated to commence in Quarter 4 2022.

Construction anticipated to be completed in Quarter 4 2024 with operation commencing in 2025.

Proposed staging (if applicable):

Not Applicable

7. Description of proposed site or area of investigation

Has a preferred site for the project been selected?

☒ No ⊘ **Yes** If no, please describe area for investigation.

If yes, please describe the preferred site in the next items (if practicable).

A broad Area of Interest for the two transmission lines (500kV line and a 220kV line) (refer to Attachment A) will be assessed and viable options considered in a detailed assessment to identify a preferred corridor. Similarly, sites for a preferred terminal station to the north of Ballarat will be subject to planning and environmental assessments to identify a preferred site. If an EES is required, the EES process will be used to assess the impacts of a preferred corridor for a transmission line alignment and preferred site for a terminal station.

General description of preferred site, (including aspects such as topography/landform, soil types/degradation, drainage/ waterways, native/exotic vegetation cover, physical features, built structures, road frontages; attach ground-level photographs of site, as well as A4/A3 aerial/satellite image(s) and/or map(s) of site and surrounds, showing project footprint):

Bioregions

Bioregions are a landscape-scale approach to classifying the environment using a range of attributes such as climate, geomorphology, geology, soils and vegetation. This Project is located across three Victorian bioregions (environment.vic.gov.au/biodiversity/bioregions-and-evc-benchmarks):

- **Victorian Volcanic Plain** (generally east of Bacchus Marsh and north and west of Creswick)

  The Victorian Volcanic Plain, located in west Victoria, is dominated by Cainozoic volcanic deposits. These deposits formed an extensive flat to undulating basaltic plain with stony rises, old lava flows, numerous volcanic cones and old eruption points and is dotted with shallow lakes both salt and freshwater. Numerous volcanic cones dot the landscape with scoria cones being the most common although some basalt cones are present.

  The soils are variable ranging from red friable earths and acidic texture contrast soils (Ferrosols and Kurosols) on the higher fertile plain to scoraceous material and support Plains Grassy Woodland and Plains Grassland ecosystems.

  Calcareous sodic texture contrast soils grading to yellow acidic earths (Chromosols and Sodosols to Dermosols), on the intermediate plain, and grey cracking clays (Vertosols) on the low plains, support Stony Knoll Shrubland, Plains Grassy Woodland and Plains Grassy Wetland ecosystems.

  On the stony rises (volcanic outcropping), the stony earths (Dermosols and Tenosols) support Stony Rises Herb-rich Woodland, Basalt Shrubby Woodland and Herb-rich Foothill Forest ecosystems.

- **Central Victorian Uplands** (generally between Bacchus Marsh and Creswick)

  The Central Victorian Uplands, located in the central Victoria, is dominated by Lower Paleozoic deposits giving rise to dissected uplands at higher elevations, amongst granitic and sedimentary (with Tertiary colluvial aprons) terrain with metamorphic and old volcanic rocks which have formed steeply sloped peaks and ridges. The less fertile hills support Grassy Dry Forest and Heathy Dry Forest ecosystems. Herb-rich Foothill Forest and Shrubby Foothill Forest ecosystems dominate on the more fertile outwash slopes. The granitic and sedimentary (with Tertiary colluvial aprons) terrain is dominated by Grassy Woodlands much of which has been cleared. Lower lying valleys and plains are dominated by Valley Grassy Forest and Plains Grassy Woodland ecosystems.

- **Goldfields** (at the north-western end of the Area of Interest).

  Goldfields, located in central Victoria, is dominated by dissected uplands (predominantly a northerly aspect) of Lower Palaeozoic deposits. Metamorphic rocks have formed steeply sloped peaks and ridges. A variety of relatively poor soils are dominant with yellow, grey and brown texture contrast soils (Chromosols and Sodosols) and minor occurrences of friable earths (Dermosols and Ferrosols).

  Box Ironbark Forest, Heathy Dry Forest and Grassy Dry Forest ecosystems dominate the lower slopes or poorer soils. The granitic and sedimentary (with Tertiary colluvial aprons) terrain is dominated by Grassy Woodlands much of which has been cleared. Occasional low-lying corridors of alluvial valleys between the uplands are dominated by Low Rises Grassy Woodland and Alluvial Terraces Herb-rich Woodland ecosystems.

Topography

The Project is located within an environment incorporating a range of topographical types including:

- Relatively flat plains
- Undulating plains
- Elevated ridgelines and mountains
- Volcanic cones
- Valleys and gorges, including Werribee Gorge and Lerderderg Gorge
- Granite outcrops.

Vegetation

Vegetation within the Area of Interest is varied and includes:

- Native forest and woodland
- Native grassland
- Pasture
- Agricultural crops
- Plantations
- Roadside vegetation (native and exotic)
- Windbreak/buffer planting within farm areas
- Garden planting around residences.

Catchments, Waterways and Lakes

The Project traverses the catchments of the following major waterways:

- Maribyrnong River
- Werribee River
- Moorabool River
- Mount Emu Creek
- Loddon River
- Avoca River
- Wimmera River.

There are many rivers, creeks and lakes within the Area of Interest. These include the Kororoit Creek, Dry Creek, Toolern Creek, Djerriwarrh Creek, Pyrites Creek, Lerderderg River, Korkuperrimul Creek, Werribee River, Parwan Creek, Moorabool River, Goodman Creek, Birch Creek, Coghills Creek, Doctors Creek, Burnbank Creek, Bet Bet Creek, Avoca River, Glenlogie Creek, Glenpatrick Creek, Glenlofty Creek and Wimmera River.

Lakes and reservoirs within the Area of Interest include the Merrimu Reservoir, Melton Reservoir, Pykes Creek Reservoir, Bostock Reservoir, Beale Reservoir, Gong Gong Reservoir, White Swan Reservoir, Moorabool Reservoir, Newlyn Reservoir and Hepburn Lagoon.

Site area (if known): …NA…… (hectares) ……

Route length (for linear infrastructure) Approximately 190 kilometres (km). The length of the alignment and development footprint will be calculated once a preferred corridor is selected.

The average easement width for the 220kV line between the Bulgana Terminal Station and the Waubra Terminal Station is expected to be 35m and 50m. The average easement width from the Waubra Terminal Station to the new terminal station to the north of Ballarat is expected to be 50m. The easement associated with the 500kV transmission line is expected to be between 70m and up to 100m wide in sections.

The easement is set for the purpose of ongoing maintenance and operational activities. A construction area that extends beyond the easement will be required for temporary laydown and access requirements.

Current land use and development:

Predominant Land Uses

Agriculture is the predominant land use across the Area of Interest, with a significant amount of land used for livestock grazing and crop production including plantations.

The Area of Interest is also located within 10km of significant natural environments including Long Forest Nature Conservation Reserve, Lerderderg State Park, Werribee Gorge State Park, Brisbane Ranges National Park, Wombat State Forest, Creswick Regional Park, Glen Park State Forest, Bungal State Forest, Mount Buangor State Forest, Ben Major State Forest, Ben More Bushland Reserve, Joel Joel Nature Conservation Reserve, Spargo Creek Education Area, Hepburn Lagoon, Newlyn Reservoir, Moorabool Reservoir, Merrimu Reservoir, Bostock Reservoir, White Swan Reservoir, Werribee River, Lerderderg River and Wimmera River.

Urban Areas and Rural Living

The Area of Interest excludes but is within 10km of a number of townships and outer suburbs of Melbourne and Ballarat, including but not limited to, Hillside, Sydenham, Taylors Hill, Caroline Springs, Melton, Bacchus Marsh, Ballan and Creswick. These areas generally consist of a civic/commercial core and are surrounded by industrial and residential development. Multiple other smaller townships predominantly made up of residential development and many areas of rural living are located throughout the Area of Interest.

Major Roads and Railways

Freeways and State Highways within the Area of Interest include the Western Freeway, Calder Freeway, Melton Highway, Midland Highway, Sunraysia Highway and Pyrenees Highway.

The Melbourne – Bendigo, Melbourne – Ballarat and Ballarat – Maryborough railway lines also passes through the area.

Airports

There are four airports identified within 10km of the Area of Interest - Melbourne Airport, Bacchus Marsh Airfield, Ballarat Airport and a small privately-owned Airfield in Melton. Potential alignments will seek to avoid impacts on these airports.

Existing Transmission Lines

The Area of Interest includes the existing 220kV Horsham to Ballarat transmission line. The proposed 220kV line for the WVTNP is proposed to run alongside this line between the Waubra Terminal Station and the Bulgana Terminal Station.

The 220kV Ballarat to Bendigo transmission line currently intersects the investigation area for a new terminal station to the north of Ballarat, where the proposed 220kV and 500kV sections of the Project are proposed to connect.

The easternmost part of the Area of Interest includes a proposed 500kV connection to the proposed North Sydenham Terminal Station next to the existing Sydenham Terminal Station. The Sydenham Terminal Station currently includes 500kV transmission line connections to the Moorabool Terminal Station, Keilor Terminal Station and the South Morang Terminal Station.

The Area of Interest for the Project includes a potential alignment option for part of the WVTNP 500kV transmission line to run alongside the existing 500kV Sydenham to Moorabool lines.

Existing Terminal Stations and Substations

A number of terminal stations and utility scale substations exist within or within 10km of the Area of Interest which include, but are not limited to Sydenham, Waubra, Ballarat, Elaine, Bulgana and Crowlands.

Description of local setting (eg. adjoining land uses, road access, infrastructure, proximity to residences & urban centres):

Described under 'Current Land Use and Development' above.

Planning context (eg. strategic planning, zoning & overlays, management plans):

The Project traverses through the municipalities of Northern Grampians, Pyrenees Hepburn, Ballarat, Moorabool and Melton. This is shown on the plans in Attachment A and B.

Planning Policy Framework

Table 1 identifies the clauses of the Planning Policy Framework (PPF) relevant to the Project. The PPF applies across the state of Victoria.

Table 1 Relevant State Planning Policy

Relevant clause		Description

Clause 11 - Settlement		• Planning is to respond to the needs of existing and future communities through provision of zoned and serviced land for housing, employment, recreation and open space, commercial and community facilities and infrastructure.
		• Planning is to recognise the need for, and as far as practicable contribute towards:
		  • Health, wellbeing and safety.
		  • Diversity of choice.
		  • Adaptation in response to changing technology.
		  • Economic viability.
		  • A high standard of urban design and amenity.
		  • Energy efficiency.
		  • Prevention of pollution to land, water and air.
		  • Protection of environmentally sensitive areas and natural resources.
		  • Accessibility.
		  • Land use and transport integration.

		• Planning is to prevent environmental and amenity problems created by siting incompatible land uses close together. • Planning is to facilitate sustainable development that takes full advantage of existing settlement patterns and investment in transport, utility, social, community and commercial infrastructure and services.
Clause 12 – Environmental and Landscape Values	Clause 12.01 Biodiversity	Clause 12.01-1S – Protection of Biodiversity • Take account of impact of land use and development on biodiversity. Clause 12.01-2S Native Vegetation Management • The removal, destruction or lopping of native vegetation, apply the three-step approach in accordance with the Guidelines for the removal, destruction or lopping of native vegetation (Department of Environment, Land, Water and Planning, 2017).
	Clause 12.03 Water Bodies and Wetlands	Clause 12.03-1S River Corridors, Waterways, Lakes and Wetland • Ensure development responds to and respects the significant environmental, conservation, cultural, aesthetic, open space, recreation and tourism assets of water bodies and wetlands.
	Clause 12.05 Significant Environments and Landscapes	Clause 12.05-2S Landscapes • Ensure development does not detract from the natural qualities of significant landscape areas.
Clause 13 Environmental Risks and Amenity	Clause 13.01 Climate Change Impacts	Clause 13.01-1S Natural Hazards and Climate Change • Integrate strategic land use planning with emergency management decision making.
	Clause 13.02 Bushfire	Clause 13.02-1S Bushfire Planning • Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.
	Clause 13.03 Floodplains	Clause 13.03-1S Floodplain Management • Avoid intensifying the impact of flooding through inappropriately located use and development.
	Clause 13.04 Soil Degradation	Clause 13.04-3S Salinity • Prevent inappropriate development in areas affected by groundwater salinity. • Any applicable regional catchment strategy and any associated implementation plan or strategy (particularly salinity management plans and regional vegetation plans). • Any special area plan approved under the Catchment and Land Protection Act 1994.
	Clause 13.05 Noise	Clause 13.05-1S Noise abatement • To assist the control of noise effects on sensitive land uses.
	Clause 13.06 Air Quality	Clause 13.06-1S Air quality management • To assist in the protection and improvement of air quality
	Clause 13.07 Amenity and Safety	Clause 13.07-1S Land Use Compatibility • Ensure the compatibility of a use or development as appropriate to the land use functions and character of the area by directing land uses to appropriate locations.
Clause 14 Natural Resource Management	Clause 14.01 Agriculture	Clause 14.01-3S Forestry and Timber Production • Identify areas that may be suitably used and developed for plantation timber production in accordance with the Code of Practice for Timber Production (Department of Environment and Primary Industries, 2014)

	Clause 14.02 Water	Clause 14.02-2S Water Quality • Discourage incompatible land use activities in areas subject to flooding, severe soil degradation, groundwater salinity or geotechnical hazards where the land cannot be sustainably managed to ensure minimum impact on downstream water quality or flow volumes.
Clause 15 Built Environment and Heritage	Clause 15.01 Built Environment	Clause 15.01-1S Urban Design • Require development to respond to its context in terms of character, cultural identity, natural features, surrounding landscape and climate. Clause 15.01-2S Building Design • Ensure development is designed to protect and enhance valued landmarks, views and vistas. Clause 15.01-6S Design for Rural Areas • To ensure development respects valued areas of rural character.
	Clause 15.02 Sustainable Development	Clause 15.02-1S Energy and Resource Efficiency • To encourage land use and development that is energy and resource efficient, supports a cooler environment and minimises greenhouse gas emissions.
	Clause 15.03 Heritage	Clause 15.03-1S Heritage Conservation • Encourage appropriate development that respects places with identified heritage values. Clause 15.03-2S Aboriginal Cultural Heritage • Identify, assess and document places of Aboriginal cultural heritage significance, in consultation with relevant Registered Aboriginal Parties, as a basis for their inclusion in the planning scheme.
Clause 17 Economic	Clause 17.01 Employment	Clause 17.01-1S Diversified economy • To strengthen and diversify the economy • Support rural economies to grow and diversify
	Clause 17.04 Tourism	Clause 17.04-1R Tourism Support nature-based tourism and protect these activities from urban encroachment.
Clause 19 Infrastructure	Clause 19.01 Energy	Clause 19.01 – 1S Energy Supply • Support the development of energy facilities in appropriate locations where they take advantage of existing infrastructure and provide benefits to industry and the community. • Support transition to a low-carbon economy with renewable energy and greenhouse emission reductions including geothermal, clean coal processing and carbon capture and storage. • Facilitate local energy generation to help diversify the local economy and improve sustainability outcomes.
		Clause 19.01-2S Renewable Energy • Facilitate renewable energy development in appropriate locations. • Protect energy infrastructure against competing and incompatible uses. • Develop appropriate infrastructure to meet community demand for energy services.

The Project supports the philosophy of Clause 11 – Settlement by responding to the needs of existing and future communities through provision of required infrastructure. The Project is responding to the needs of the community for diversity of choice and provision of efficiency in relation to energy supply.

The Project supports State planning policy in relation to energy supply, in particular the support for transmission infrastructure for the growing production of renewable energy. The benefits of the Project will be felt State-wide and will support other key policy associated with the built environment and the State economy.

Objectives in relation to the protection of natural environments and resources, landscapes and amenity will continue to be recognised as part of the planning approvals process and the final design of the Project to minimise and mitigate/manage potential impact.

Table 2 lists relevant local policy objectives from each of the Council's Municipal Strategic Statement (MSS).

Table 2 Local Planning Policy

Planning Scheme	Policy Clause	Objectives
Melton	Clause 21.03 Environment and Landscape Values	Clause 21.03-2 Significant environmental and landscapes • To protect the significant landscape values of the municipality and ensure development does not adversely impact upon them.
	Clause 21.04 Environmental Risks	Clause 21.04-1 Climate Change • To develop a City well-adapted to climate change. • To minimise greenhouse gas emissions in the City.
Moorabool	Clause 21.02 Natural Environment	Clause 21.02-2 Non-urban landscapes • Maintain the open rural landscape between the Shire's eastern boundary and Bacchus Marsh as a visual buffer. • Recognise and protect the national, state and regional values of Werribee Gorge State Park, Bungal State Forest, Long Forest Nature Reserve, Lal Lal State Forest, Lal Lal Falls, Brisbane Ranges Lerderderg State Park, and Wombat State Forest. • Protect the landscape and scenic qualities of forested hill slopes, rural landscapes, and bushland setting of the Shire's rural and urban areas. • Minimise visual impacts on high quality landscapes by only supporting well designed appropriate development on hilltops and ridgelines.
	Clause 21.07 Bacchus Marsh	Clause 21.07-4 Rural living development • To provide high amenity rural lifestyle opportunities while protecting irrigated horticultural land and the sustainability of environmental assets. • Provide planned rural living development in appropriate locations as detailed on the Bacchus Marsh Urban Growth Framework Plan. • Recognise the importance and attractiveness of rural residential and rural lifestyle living as an alternative living environment in designated areas around Bacchus Marsh.

	Clause 21.08 Ballan	Clause 21.08 Ballan • To identify and manage urban growth opportunities in the short term in the north-east corner of Ballan and to the south of the railway line (between Gillespie's Lane and the railway line).
Hepburn	Clause 21.08 Rural Land Use and Agriculture	• Areas of high-quality agricultural land located around Creswick, Newlyn, Smeaton, Daylesford and Glenlyon should be protected. However, a significant number of rural living type lots are located in these areas of high to very high agricultural quality. This creates the potential for future land use planning conflicts and should be discouraged. • To protect areas of high–very high-quality agricultural land and areas with demonstrated potential for productive agricultural activity from non-complementary land uses.
	Clause 21.09 Environment and Heritage	• To protect remnant vegetation and habitat from unplanned loss, while enhancing linkages between habitat areas. • To manage development where significant landscapes and landscape features could be adversely affected. • To encourage water and energy efficiency in all development, including subdivision, construction of buildings and infrastructure.
Ballarat	Clause 21.03 Environmental and Landscape Values	Clause 21.03-1 Biodiversity • To protect and enhance habitats and biodiversity. • Protect the bushland setting of fringe settlement areas, including Mount Helen and Nerrina. • Minimise the environmental impact of infrastructure development and utility services, especially on native vegetation. • Protect remnant vegetation, particularly in road reserves and along waterways.
		Clause 21.03-2 Significant environments and landscapes • Protect and enhance the vegetation, biodiversity, habitat, amenity and attractiveness of identified landscape values and significant environmental features. • Protect historic trees, both native remnants and planted specimens, with cultural or historic values. • Maintain the natural state of the volcanic cones (the 'Bald Hills'). • Prevent development and revegetation that would detract from the 'bald' appearance of the 'Bald Hills'.
	Clause 21.04 Environmental Resilience	Clause 21.04-1 Sustainability and changing climate • Support innovative development approaches which achieve energy conservation and emissions reduction. • Support on-site renewable and low emission energy generation, such as solar hot water, photovoltaic

		cells, wind powered turbines or combined heat and power generation systems in new developments. • Evaluate proposals with a view to limiting their potential greenhouse effects.
	Clause 21.05 Natural Resource Management	Clause 21.05-1 Agriculture • To support agriculture as an important element of the City's economic and employment base. • Encourage diversification of farming activities which support a sustainable agricultural economy. • Provide for agricultural value adding industries in locations where appropriate services are available.
Pyrenees	Clause 21.03 Settlement, Built Environment and Heritage	Clause 21.03-3 Heritage • Promote and retain physical evidence of the Shire's important gold history in the mining sites, mullock heaps and related workings. • Promote and retain significant views to mining sites from the townships such as Snake Valley and Avoca. • Assess proposed developments in heritage areas to have regard and respect for the character, integrity and composition of the areas.
	Clause 21.04 Environmental and Landscape Values and Risks	Clause 21.04-4 Land use capability assessment • Development of a Land Use and Development Constraints Plan to identify various constraints to land use and development. The objective of the plan is to Identify areas of environmental sensitivity which have implications in terms of land management.
	Clause 21.05 Rural Development	Clause 21.05-2 Sustainable agricultural land use • Encourage farm management practices and land use activities that have the capacity to be sustained and reflect the optimal use of the land. • Encourage measures to reduce salinity and land degradation, such as through the preparation and implementation of land and water management plans at a farm and regional scale. • Protect significant flora and fauna habitats and remnant vegetation.
	Clause 22.04 Native Vegetation Protection	• To conserve and enhance existing vegetation throughout the Shire wherever practicable. • To protect significant and sensitive areas including wetlands from the negative effects of vegetation clearance and modification.
Northern Grampians	Clause 21.03 Environmental risk and landscape values	Clause 21.03-1 Environment, landscape values and risk • To protect the environmental and landscape values of the Grampians National Park. • Recognise the significance of the environmental and landscape values of the Grampians National Park, locally and as a major natural feature tourist attraction. • Ensure that development does not adversely impact on the landscape qualities of the Grampians National Park and surrounding rural areas.

		• Maintain the quality of vistas to and from the Grampians National Park.
	Clause 21.05 Infrastructure and Community Development	Clause 21.05-1 Electricity generation and distribution • Encourage renewable electricity generation and distribution in the shire. • To reduce the municipality's reliance on non-renewable energy. • Support the development of locally generated renewable energy.

The MSS objectives relevant to this Project generally focus on the need to protect highly productive agricultural land use and the rural character of each municipality. Most municipalities have objectives around the protection of significant landscapes and vistas, along with the natural features of the area including biodiversity. It is noted that the Moorabool Shire Council (August 2018) has specific policies for the townships of Bacchus Marsh and Ballan.

Objectives supporting energy generation and infrastructure, in particular relating to renewable energy, are included in planning policies in the MSS for the municipalities of Ballarat and Northern Grampians.

Zones and Overlays

Plans which show the zones and overlays which apply to the Area of Interest are contained in Attachment D.

The Area of Interest for the 220kV transmission line is within the Farming Zone. Other zones within the 220kV Area of Interest include the:

- Public Conservation and Resource Zone
- Rural Conservation Zone
- Rural Living Zone
- Public Use Zone 1
- Road Zone, Category 1
- Public Use Zone 4 (Transport)
- Township Zone.

Overlays which intersect or are adjacent to parts of the 220kV Area of Interest include:

- Environmental Significance Overlay
- Vegetation Protection Overlay
- Bushfire Management Overlay
- Erosion Management Overlay
- Floodway Overlay
- Land Subject to Inundation Overlay
- Significant Landscape Overlay.

The majority of the Area of Interest for the 500kV transmission line is within the Farming Zone and Green Wedge Zone. Other zones within the 500kV Area of Interest include the:

- Rural Conservation Zone
- Special Use Zone
- Rural Living Zone

- Road Zone, Category 1
- Public Use Zone 4

Overlays which intersect or are adjacent to parts of the Area of Interest for the 500kV transmission line include:

- Significant Landscape Overlay
- Heritage Overlay
- Environmental Significance Overlay
- Design and Development Overlay
- Bushfire Management Overlay
- Melbourne Airport Environs Overlay

Local government area(s):

The Area of Interest crosses six local government areas as shown on Attachment A and as follows:

220kV transmission line

- Northern Grampians
- Pyrenees
- Ballarat

500kV transmission line

- Hepburn
- Moorabool
- Melton

Depending on the location of the new terminal station to the north of Ballarat, the new 220kV transmission line could extend into Hepburn or Moorabool local government areas.

The Area of Interest is also within 10km of the following local government areas:

- Ararat
- Macedon Ranges
- Hume
- Brimbank
- Wyndham

8. Existing environment

Overview of key environmental assets/sensitivities in project area and vicinity (cf. general description of project site/study area under section 7)**:**

Sensitive Land Uses

The Area of Interest includes a number of townships and outer suburbs of Melbourne and Ballarat, including but not limited to, Hillside, Sydenham, Taylors Hill, Caroline Springs, Melton, Bacchus Marsh, Ballan and Creswick. Multiple other smaller townships predominantly made up of residential development and many areas of rural living are located throughout the Area of Interest.

The Area of Interest contains or is or is located within 10km to many areas of public land used for conservation or recreation purposes and many significant environmental assets. These include large areas of public land reserved for nature conservation, recreation and/or tourism within 10km of the Area of Interest as shown in Attachment A and B as follows:

- Organ Pipes National Park
- Long Forest Nature Conservation Reserve
- Lerderderg State Park
- Wombat State Forest
- Werribee Gorge State Park
- Creswick Regional Park
- Ben Major State Forest
- Mount Cole State Forest
- Pyrenees Range State Forest
- Lexton Nature Conservation Reserve

In addition to the areas of public land reserved for nature conservation purposes, the Area of Interest contains or is located within 10km of many landscapes where the Significant Landscape Overlay (SLO) has been applied in planning schemes:

Melton

- SLO (Schedule 1 - Volcanic Hills and Cones) - on Mount Cottrell, Mount Kororoit and Mount Atkinson

Moorabool

- SLO (Schedule 1 - Scenic Ridgetops and Ridge Line Areas) - on scenic hilltops and ridge lines encircling the township of Bacchus Marsh
- SLO (Schedule 2 – Gordon Town Centre, Township and Surrounds)

Hepburn

- SLO (Schedule 1 - Volcanic Peaks Landscape Area, Ridges and Escarpments and Sites of Geological Significance) – on volcanic cones in the Newlyn locality

Ballarat

- SLO (Schedule 1 - Mount Bolton)

Plans which show the overlays which apply to the Area of Interest are contained in Attachment D.

The area contains many significant areas of native vegetation and habitat as outlined under Ecology below.

Ecology

Plans which show the biodiversity values which apply to the Area of Interest are contained in Attachment E.

The Area of Interest is predominantly used for grazing and cropping. The area also contains significant ecological values that are located in areas such as parks, along and within waterways and within large and small patches of native vegetation. Further assessment is required to verify the presence and extent of the values present.

Areas that have highest potential for ecological values such as threatened communities and habitat for threatened species are those areas with large intact areas of native vegetation that can support a range of threatened species or native grassland areas which are classified as endangered and can support a range of threatened species. This includes:

- Areas of native forest and woodland in the vicinity of Lexton. Areas of forest in this area that may support threatened species such as Ben Major Grevillea (listed under the EPBC and FFG Acts).
- Areas of forest close to Creswick that have potential to support a range of threatened species.
- Patches of woodland between Amphitheatre and Bulgana that have potential to support threatened woodland communities and a range of threatened species. Native grasslands that have potential to comprise threatened communities (listed under the EPBC and FFG Acts) and habitat for a range of threatened species such as Spiny Rice-flower, Golden Sun Moth and Striped Legless Lizard (all listed under the EPBC and FFG Acts).
- Areas in the vicinity of Bacchus Marsh have vegetation that can comprise threatened communities and species such as Brittle Greenhood and Bacchus Marsh Wattle (listed under the FFG Acts) that are regionally restricted to this area. There is also potential for these areas to support migrating Swift Parrot (listed under the EPBC and FFG Acts).
- Areas of forest adjacent to the Lerderderg State Park which has potential to support high quality native vegetation that can support threatened species such as the Swift Parrot (listed under the EPBC and FFG Acts).
- Areas of forest near Moorabool Reservoir which has potential to support high quality native vegetation that can support threatened species such as Basalt Peppercress (listed under the EPBC and FFG Acts).

Further assessment is required to verify the presence and extent of values present, including field assessment to determine the presence and quality of the vegetation or habitat present.

Investigation area for the new Terminal Station to the north of Ballarat

The investigation area for the new terminal station to the north of Ballarat does not include areas that are highly likely to be of significant ecological value such as parks, major waterways and large patches of native vegetation. However, there is potential habitat for threatened communities and threatened species to be present.

Further assessment is required to verify the presence and extent of values present, including field assessment to determine the presence and quality of the vegetation or habitat present.

Cultural Heritage

The Area of Interest contains hundreds of areas of cultural heritage significance associated with Aboriginal places, named waterways and volcanic cones.

Hundreds of previously registered Aboriginal places, including artefact scatters, low density artefact distributions, scar trees, earth features, quarries and object collections are located throughout the Area of Interest. These places are located across the landscape but can be found in greater densities along waterways, ridgelines or on top of stony rises or elevated land. Previously registered Aboriginal places are particularly prevalent near to waterways such as the Maribyrnong River, Kororoit Creek, Werribee River and Moorabool River and where large areas of remnant vegetation exists in reserves such as Organ Pipes National Park, Long Forest Nature Conservation Reserve and Lerderderg State Park. Distinct volcanic features in the landscape such as Mount Cottrell, Mount Kororoit and Mount Atkinson volcanic cones are also areas of Aboriginal cultural heritage sensitivity for both tangible and intangible values.

Historic Heritage

The Area of Interest contains places on the Victorian Heritage Register, Victorian Heritage Inventory and Heritage Overlays within the relevant Planning Schemes. These include, but are not limited to, homesteads, dry stone walls, mining sites, township buildings, churches, railway bridges and embankments, war memorials and Avenues of Honour.

No places within the Commonwealth Heritage List, National Heritage List or Register of the National Estate were recorded within the Area of Interest. The closest Commonwealth heritage places are located approximately 8km south east of the nearest point of the Area of Interest are the Officer's Mess, Eastern Hangars and West Workshops Precincts at RAAF Williams Laverton Base.

The closest National heritage place to the Area of Interest is the Eureka Stockade Gardens, located approximately 3.5km south west of the closest part of the Area of Interest.

In addition to the above, a submission is currently being prepared by a consortium of Councils in Central Victoria to formulate a serial nomination of a collection of places related to the Victorian Goldfields for inscription in the UNESCO World Heritage List. The preparation of the submission is in its early stages and the extent of the nomination is yet to be scoped.

Waterways, Wetlands and Water bodies

The Area of Interest traverses the catchments of the Maribyrnong River, Moorabool River, Loddon River, Mount Emu Creek, Avoca River, Wimmera River Kororoit Creek, Werribee River and Moorabool River as well as many smaller watercourses.

The Area of Interest also contains or is in close proximity (<100m) to mapped wetland areas including Lake Merrimu, Melton Reservoir, Pykes Creek Reservoir, Bostock Reservoir, Gong Gong Reservoir, White Swan Reservoir, Newlyn Reservoir a as well as many unnamed wetlands.

There are no environmental assets or sensitivity associated with the land proposed to be occupied by the new North Sydenham Terminal Station, which immediately adjoins the existing Sydenham Terminal Station.

9. Land availability and control

Is the proposal on, or partly on, Crown land?

☒ No X **Yes** If yes, please provide details.

The Area of Interest includes part of Lake Merrimu Reserve and various small areas of public land including streamside reserves.

A plan showing public and private land within the Area of Interest is contained in Attachment F.

Current land tenure (provide plan, if practicable):

Mixture of predominantly freehold land and some public land.

Intended land tenure (tenure over or access to project land):

The proposed transmission line easement will be through negotiated licence however if easements are unable to be negotiated, there are provisions in the *Electricity Industry Act 2000* for compulsory acquisition.

The proposed terminal stations will be located on land to be acquired under the provisions of the *Transfer of Land Act 1958*.

Other interests in affected land (eg. easements, native title claims):

Other interests in land are yet to be determined.

10. Required approvals

State and Commonwealth approvals required for project components (if known):

Commonwealth

- Referral and potential approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

Victorian

- Planning Scheme Amendments to the Northern Grampians, Pyrenees, Hepburn, Ballarat, Moorabool and Melton Planning Schemes under the *Planning and Environment Act 1987*
- Cultural Heritage Management Plans under the *Aboriginal Heritage Act 2006*
- Consent under the *Road Management Act 2004* from the coordinating road authority (Regional Roads Victoria, Department of Transport or Council, depending upon the category of road) for works on, in or under a road reserve.
- Potential permit to remove protected flora on public land under the *Flora and Fauna Guarantee Act 1988*
- Potential consent under the *Heritage Act 2017* for impact on any sites on the Victoria Heritage Register and / or the Victorian Heritage Inventory and to impact on archaeological relics (non-Aboriginal archaeological relics more than 50 years old)
- Potential license under the *Water Act 1989* to construct, alter, operate or decommission works on, over or under a waterway, to construct a bore or to extract groundwater
- Potential authorisation to relocate wildlife under the *Wildlife Act 1975*
- Potential authorisation for a borrow pit including a work authority or Work Plan under the *Mineral Resources (Sustainable Development) Act 1990*

Have any applications for approval been lodged?

☒ **No** ☐ Yes If yes, please provide details.

No Applications have been lodged to date.

Approval agency consultation (agencies with whom the proposal has been discussed):

- DELWP Impact Assessment, Planning and Regional officers.
- Aboriginal Victoria
- Heritage Victoria
- Department of Transport
- Department of Jobs, Precincts and Regions (Earth Resources Regulation)

- Commonwealth Department of Agriculture, Water and Environment (DAWE)
- Shires of Northern Grampians, Pyrenees, Hepburn and Moorabool and Cities of Ballarat and Melton
- Wurundjeri Woi-Wurrung Cultural Heritage Aboriginal Corporation
- Wathaurung Aboriginal Corporation
- Dja Dja Wurrung Clans Aboriginal Corporation
- Barengi Gadjin Land Council Aboriginal Corporation
- Eastern Maar Aboriginal Corporation
- Bunurong Land Council Aboriginal Corporation
- Boon Wurrung Foundation
- Martang Pty Ltd

Other agencies consulted:

- Southern Rural Water
- Invest Victoria

It is also intended to consult with, but not limited to,

- Parks Victoria
- Corangamite Catchment Management Authority (CMA)
- North Central CMA
- Port Phillip and Westernport CMA
- Glenelg Hopkins CMA
- Wimmera CMA
- Department of Jobs, Precincts and Regions (Agriculture)
- Southern Rural Water
- Central Highlands Water
- Grampians Wimmera Mallee Water
- EPA
- Country Fire Authority
- Melbourne Fire Brigade
- Regional Development Victoria

A description of the consultation and engagement activities undertaken to date and proposed is contained in Attachment G.

PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

11. Potentially significant environmental effects

Overview of potentially significant environmental effects (identify key potential effects and comment on their significance and likelihood, as well as key uncertainties):

The Area of Interest has largely been historically disturbed from its pre-European state for agricultural land uses and few contiguous areas of habitat remain. While the Project will employ practicable measures to avoid potential impacts, the following potential impacts are anticipated:

Construction

- The Project will likely result in the clearing of 10ha or more of native vegetation. Of the vegetation to be cleared, it is unlikely that this will be 10ha or more of an endangered Ecological Vegetation Class (EVC) or of very high conservation significance, however this will be confirmed after field surveys planned to commence in September 2020. The impact of any vegetation and habitat clearance will be confirmed after the field survey is undertaken.
- Habitat loss – The Project may result in small scale habitat loss relative to the alignment length. Where impacts cannot be avoided, habitat loss may occur on the edges of existing habitat areas, trimming the larger extent of habitat available in that area. Habitat loss may also occur on the edges of existing breaks, such as roads or other powerline easements, increasing the width of clearing between habitat areas. Further assessment of the habitat along potential alignments will be required to determine the potential for the Project to impact on threatened species.
- Habitat fragmentation - The Project has the potential to result in habitat fragmentation in specific areas where it intersects areas of contiguous habitat and leave gaps that hinder natural dispersal of biodiversity across the landscape. Areas where this impact may be incurred include habitat links between the Area of Interest and the Lerderderg State Park-Pyrete Range, the Parawan Creek and Brisbane Ranges National Park, vegetated habitat corridors between Gordon and the Moorabool Reservoir, and riparian habitat corridors associated with Creswick Creek, Mount Greencock Creek and Greenhill Creek. Potential impact may also occur to vegetated habitat corridors between Creswick Regional Park and Glen Park State Forest and vegetated areas surrounding Ben Major Bushland Reserve. Vegetated roadside corridors throughout the Area of Interest also provide important habitat corridors in agricultural areas devoid of much other vegetation and these areas may be impacted where works intersect road corridors. Additional areas where habitat fragmentation may impact threatened species and Threatened Ecological Communities (TECs) may be identified during further field-based assessments.
- The Project will have extensive effects on landscape values of regional importance due to the length and height of the transmission line. Whilst the transmission line corridor will endeavour to avoid land reserved under the *National Parks Act 1975* and land affected by a Significant Landscape Overlay in Planning Schemes, it will be visible from a large number of vantage points, including from some land within such parks and overlays.
- The Project is likely to impact on Aboriginal cultural heritage. It is unlikely that these impacts would be extensive or major, however this can only be confirmed after field survey and engagement with Aboriginal communities.
- Introduction and spread of weeds and pathogens - There is potential that machinery or materials associated with soil movement that are required to construct and maintain the Project may become contaminated and introduce or spread existing weed material or pathogens, such as Phytophthora cinnamomic (die-back / root-rot). It is expected that weed and pathogen hygiene protocols will be employed to minimise the risks associated with this potential impact. Establishment of weeds in areas of disturbed soils will be managed to

suppress weed establishment as appropriate (e.g revegetating disturbed soils with appropriate fast-growing species such as infertile grasses that enable native vegetation succession).

Operation

- The Project will have significant effects on the amenity of a substantial number of residents, due to the extent of visibility of the transmission line within the landscapes viewed from a large number of dwellings. Mitigation options available to manage visual impact from locations that are considered to be significantly visually affected by a Project include screen planting around terminal stations, buildings and lower infrastructure, re-siting to locations where they will have less visual impact, and non-reflective coating of structures.
- It is expected that timbered land within any easement along the final route will be managed such that logs and coarse woody debris will be regularly removed to manage fire risk. The Project will attempt to avoid and/or minimise the loss of hollow-bearing tree habitat in forests and woodlands, and isolated paddock trees where possible.
- Potential for birds and bats to collide with stationary infrastructure - Birds and bats are at risk of in-flight collision with stationary infrastructure, including towers, electricity lines, and tall compound fences (DELWP 2017[1]; Maloney, Lumsden, Smales 2019[2]) which may result in injury and/or mortality. Lighting may disorient birds at night increasing collision risk. Fences, wires, and transmission lines can be difficult for some species to avoid, resulting in fatalities. Transmission lines pose a well-documented hazard for many species of large birds (DELWP 2017), particularly those which travel between critical sites along flightpaths that are intersected by the transmission lines (e.g. migratory species travelling between breeding and non-breeding areas). As suggested by Biosis (2016[3]), some larger bird species experience a higher frequency of collisions with low voltage distribution power lines per powerline length than they do with larger, higher voltage lines. As such, flight paths of relevant species will be considered during design and siting tasks. Some species may avoid the infrastructure by large margins, resulting in loss of access to nearby habitats. Mitigation options available to minimise potential collision impacts include high visibility line markers and micro-sitting of infrastructure.
- Predation of native wildlife - This process will not be further exacerbated in previously cleared areas however, where the Project is in close proximity to forested and woodland areas that support native fauna, the introduction of a newly cleared areas and transmission towers as access and vantage points has potential to increase the predation of native fauna. Options to mitigate the potential risk of increased predation will be further considered in light of the findings of field-based assessments, including the types of native species that are likely to be present and which may potentially experience increased predation.
- Introduction and spread of weeds and pathogens – as discussed above.

While some impacts are likely to occur as a result of the scale of the Project, there is significant capacity to avoid and minimise potential impacts to areas of high ecological value. The magnitude of the impact will be determined following additional field-based assessments to verify presence, assess potential impacts, and identify opportunities for potential impact mitigation.

[1] DELWP (2017). Policy and planning guidelines - Development of wind energy facilities in Victoria. L. Department of Environment, Water and Planning, Sustainable Energy Authority Victoria.

[2] P.D. Moloney L.F. Lumsden and I. Smales (2019). Investigation of existing post-construction mortality monitoring at Victorian wind farms to assess its utility in estimating mortality rates. 123 Brown Street, Heidelberg, Victoria 3084, Arthur Rylah Institute for Environmental Research

[3] Biosis (2016). Stockyard Hill Wind Farm Impact Assessment - Risks of Brolga collisions with external powerline. Report for Origin Energy. Biosis Pty Ltd, Melbourne

12. Native vegetation, flora and fauna

12.1 Native vegetation

Is any native vegetation likely to be cleared or otherwise affected by the project?

☒ NYD ☒ No ☒ **Yes** If yes, answer the following questions and attach details.

What investigation of native vegetation in the project area has been done? (briefly describe)

Jacobs ecologists reviewed the DELWP and DAWE databases that provide information on threatened flora and fauna species and vegetation communities. This included the Native Vegetation mapping (DELWP - 7 May 2020), Current Wetland Inventory (DELWP – 7 May 2020), Victorian Biodiversity Atlas (DELWP – 7 May 2020) and the Protected Matters Search Tool (PMST) (DAWE – 25 May 2020).

A brief field assessment was undertaken in March 2020, which took the form of a brief assessment of areas from publicly accessible areas such as road reserves. This assessment focussed on areas along potential alignments and terminal station locations. This brief assessment has confirmed that the majority of the Area of Interest is free of native vegetation having largely been converted to agriculture though some areas do retain patches of native vegetation including forests, woodlands and native grasslands.

Given the broad extent of the Area of Interest, a conservative approach has been undertaken at this early stage that all native vegetation communities and threatened species identified in the databases have potential to occur. The native vegetation and species habitat that may be impacted by the Project will require field assessment to define the extent and quality of existing values and to inform efforts to avoid and minimise impacts where possible.

What is the maximum area of native vegetation that may need to be cleared?

☒ **NYD** Estimated area …….. (hectares)

The extent of native vegetation that may need to be cleared for construction is not yet known. There is capacity for the Project to avoid many areas of contiguous native vegetation but some impact to native vegetation patches and scattered trees is expected. Initial scenario testing of potential alignments has indicated that the potential impact may be in the vicinity of ~25 ha if considering that vegetation removal will be largely limited to potential tower locations though this will vary depending on the alignment chosen, the type of towers installed and the ability to avoid vegetation through micro-siting of towers.

How much of this clearing would be authorised under a Forest Management Plan or Fire Protection Plan?

☒ **N/A** …Nil…….. approx. percent (if applicable)

Which Ecological Vegetation Classes may be affected? (if not authorised as above)

☒ NYD ☒ Preliminary/detailed assessment completed. If assessed, please list.

220kV Area of Interest

The Area of Interest for the proposed 220kV transmission line is modelled to be largely cleared of native vegetation. Where modelled native vegetation is intersected, it is identified as being the following EVCs within the Victorian Volcanic Plain (VVP), Goldfields (Gold) and Central Victorian Uplands (CVU) Bioregions (Table 3).

Table 3 EVCs recorded in the Area of Interest

Ecological Vegetation Class	Conservation Status	Bioregion
Alluvial Terraces Herb-rich Woodland (EVC 67)	Endangered	Gold
Creekline Grassy Woodland (EVC 68)	Endangered	Gold
Grassy Dry Forest (EVC 22)	Depleted	Gold
Hills Herb-rich Woodland (EVC 71)	Vulnerable	VVP and CVU
Plains Grassland (EVC132)	Endangered	CVU and VVP
Plains Grassy Woodland (EVC 55)	Endangered	VVP and Gold
Plains Woodland (EVC 803)	Endangered	Gold
Riparian Woodland (EVC 641)	Endangered	Gold
Stream Bank Shrubland (EVC 851)	Endangered	VVP
Swamp Scrub (EVC 53)	Endangered	VVP
Valley Grassy Forest (EVC 47)	Vulnerable	CVU and Gold
Grassy Woodland (EVC 175)	Endangered	CVU and VVP

Most of the native vegetation modelled to occur comprises small and fragmented patches that typically have relatively low ecological values. Areas of extensive native vegetation that are predicted to have higher ecological values are present at the following locations:

- Areas of native forest and woodland in the vicinity of Lexton
- Areas of forest near Creswick
- Patches of woodland between Amphitheatre and Bulgana.

500kV Area of Interest

The Area of Interest for the proposed 500kV transmission line has been modelled in the 2005 EVC mapping provided by DELWP to have been largely cleared of native vegetation. Where modelled native vegetation is intersected, it is identified as being the following EVCs within the Victorian Volcanic Plain (VVP) and Central Victorian Uplands (CVU) Bioregions (Table 4).

Table 4 EVCs recorded in the 500kV Area of Interest

Ecological Vegetation Class	Conservation Status	Bioregion
Creekline Herb-rich Woodland (EVC 164)	Vulnerable	CVU
Escarpment Shrubland (EVC 895)	Endangered	CVU
Grassy Woodland (EVC 175)	Endangered	CVU and VVP
Herb-rich Foothill Forest (EVC 23)	Depleted	CVU
Plains Grassland (EVC132)	Endangered	CVU and VVP
Plains Sedgy Wetland (EVC 647)	Endangered	VVP

Plains Grassy Woodland (EVC 55)	Endangered	VVP
Rocky Chenopod Woodland (EVC 64)	Endangered	CVU
Sedgy Riparian Woodland (EVC 198)	Depleted	CVU
Shrubby Dry Forest (EVC 21)	Least Concern	CVU
Stream Bank Shrubland (EVC 851)	Vulnerable	CVU
Swampy Riparian Woodland (EVC 83)	Endangered	VVP
Valley Grassy Forest (EVC 47)	Vulnerable	CVU

Most of the native vegetation modelled to occur comprises small and fragmented patches that typically have relatively low ecological values. Areas of extensive native vegetation that are predicted to have higher ecological values are present at the following locations:

- Patches of native grasslands and woodlands throughout the Victorian Volcanic Plain Bioregion between Bacchus Marsh and Sydenham
- Areas within Long Forest near Lake Merrimu east of Bacchus Marsh
- Areas of woodlands and forest in the vicinity of Bacchus Marsh
- Areas of forest adjacent to the Lerderderg State Park
- Areas of forest near Moorabool Reservoir.

Investigation area for the new Terminal Station to the north of Ballarat

The area of investigation for a new terminal station north of Ballarat is modelled to be largely free of native vegetation. Where modelled native vegetation is intersected, it is identified as being the following EVCs within the Victorian Volcanic Plain (VVP) and Central Victorian Uplands (CVU) Bioregions:

- Swamp Scrub (EVC 53) – Endangered in VVP and CVU
- Plains Grassy Woodland (EVC 55) – Endangered in VVP
- Hills Herb-rich Woodland (EVC 71) – Vulnerable in VVP and CVU
- Creekline Herb-rich Woodland (EVC 164) – Vulnerable in CVU
- Plains Sedgy Wetland (EVC 647) – Endangered in VVP
- Scoria Cone Woodland (EVC894) – Endangered in VVP and CVU

The native vegetation is present as small patches throughout the area of investigation. It is expected that the extent of native vegetation removal will be relatively small given the capacity to avoid and minimise during design of the new terminal station, to the north of Ballarat.

Have potential vegetation offsets been identified as yet?

☒ **NYD** ☐ Yes If yes, please briefly describe.

Other information/comments? (eg. Accuracy of information)

NYD = not yet determined

12.2 Flora and fauna

What investigations of flora and fauna in the project area have been done?

(provide overview here and attach details of method and results of any surveys for the project & describe their accuracy)

Desktop assessment of DELWP and DAWE databases (see Native Vegetation above).

Have any threatened or migratory species or listed communities been recorded from the local area?

☐ NYD ☐ No ☒ **Yes** If yes, please:

- List species/communities recorded in recent surveys and/or past observations.
- Indicate which of these have been recorded from the project site or nearby.

Area of Interest for 220kV alignment

Threatened Species

The likelihood of rare and threatened species previously recorded within or adjacent to the Area of Interest on the Victorian Biodiversity Atlas (VBA) or identified by the Protected Matters Search Tool (PMST) as having potential to occur in the Area of Interest are listed in Attachment B. Modelled PMST data and VBA database searches indicate a total of 67 rare or threatened flora species and 47 threatened fauna species have potential to occur in the 220kV Area of Interest. Historically, there has been comparatively less survey effort in the vicinity of the 220kV Area of Interest compared to the 500kV Area of Interest and therefore, greater uncertainty with regard to the likelihood of occurrence for species. Based on available data, it has been determined that there is potential to impact on habitat for 31 rare and threatened flora species (3 EPBC, 7 FFG, 31 VicAdv) and 16 of the threatened fauna species (4 EPBC, 12 FFG, 16 VicAdv). This assessment takes into account the vegetation types and habitat conditions preferred by each species and the fact that the Project is likely to avoid direct impacts to habitat for wetland birds or highly restricted species such as certain orchids, however, woodland, grassland and forest habitat types are likely to be impacted to some degree.

Those species that have potential to be impacted will depend on the alignment chosen for the Project as there is capacity to avoid potential habitat for the majority of the species by avoiding areas of extensive native vegetation and known populations of threatened species. Further assessment of the habitat will be required to determine the potential for the Project to impact on particular species.

EPBC-listed Communities

The PMST identified six EPBC Act listed communities as potentially occurring within the Area of Interest. These communities and their likelihood of occurrence within the Area of Interest are listed in Table 5.

All EPBC listed communities have criteria that must be met to be classified as a threatened community – a field assessment is required to confirm whether the criteria are met and therefore the community is present.

Table 5 EPBC listed Communities with potential to occur within the 220kV Area of Interest

EPBC Community	Potential EVC known along alignment	Likelihood of Occurrence
Grassy Eucalypt Woodland of the Victorian Volcanic Plain – Critically Endangered	Plains Grassy Woodland – VVP Grassy Woodland -VVP	Moderate – Potential to occur in vicinity of area of the Area of Interest between Lexton and the new terminal station to the north of Ballarat. This community appears to have been largely cleared from the Area of Interest though small remnants may remain
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia – Endangered	Plains Grassy Woodland – Gold and CVU Plains Woodland - Gold	High – Potential to occur in vicinity of Area of Interest between Bulgana and Lexton where Grey Box has been noted in woodland communities.
Natural Grasslands of the Murray Valley Plains – Critically Endangered	None	Low – Area of interest is outside the geographical extent of this community.
Natural Temperate Grassland of the Victorian Volcanic Plain – Critically Endangered	Plains Grassland - VVP	Moderate – Potential to occur in areas of native grassland modelled between Lexton and the new terminal station to the north of Ballarat. This community appears to have been largely cleared from the Area of Interest though small remnants may remain
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains – Critically Endangered	Mapped Wetlands	Low – Has potential to occur where known wetlands occur. Can persist where native vegetation is not modelled to occur.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered	Grassy Woodland – VVP and CVU	Moderate – This community is largely restricted to areas north of the Great Dividing Range there is a moderate likelihood that constituent species will occur between Lexton and the western end of the Area of Interest near Bulgana.

FFG-listed Communities

Communities listed under the FFG Act with potential to occur within the Area of Interest are listed below in Table 6. FFG communities do not have defined criteria that are required to be met but constituent species must match the description of the communities (DELWP 2018).

Table 6 FFG listed Communities with potential to occur within the 220kV Area of Interest

FFG Listed Community	Potential EVC known along alignment	Likelihood of Occurrence
Grey Box – Buloke Grassy Woodland Community	Grassy Woodland – CVU and Gold	Moderate – Potential to occur in vicinity of Area of Interest.
Creekline Grassy Woodland (Goldfields) Community	Creekline Grassy Woodland – Gold	Moderate - Potential to occur in vicinity of Bacchus Marsh where this community is known to occur.
Victorian Temperate Woodland Bird Community	Woodland EVCs – CVU	High – Is considered likely to occur based in intact woodland communities based on past records

		of core bird species in the Area of Interest
Western (Basalt) Plains Grasslands Community	Plains Grassland – VVP	High - Potential to occur in areas of grassland within the Victorian Volcanic Plains Bioregion.
Western Basalt Plains (River Red Gum) Grassy Woodland	Plains Grassy Woodland – VVP	High – Potential to occur in vicinity of study area within the Victorian Volcanic Plains Bioregion.

Area of Interest for 500kV alignment

Threatened Species

The likelihood of rare and threatened species previously recorded within or adjacent to the Area of Interest on the VBA or identified by the PMST as having potential to occur in the Area of Interest are listed in Attachment B. Modelled PMST data and VBA database searches indicate a total of 103 rare or threatened flora species and 50 threatened fauna species have potential to occur in the 500kV Area of Interest. Based on available data, it has been determined that there is potential to impact on habitat for 38 of the rare and threatened flora species (8 EPBC, 17 FFG, 38 VicAdv) and 25 of the threatened fauna species (8 EPBC, 18 FFG, 25 VicAdv) identified above. This assessment takes into account the vegetation types and habitat conditions preferred by each species and the fact that the Project is likely to avoid direct impacts to habitat for wetland birds or highly restricted species such as certain orchids, however, woodland, grassland and forest habitat types are likely to be impacted to some degree. Those species that have potential to be impacted will depend on the alignment chosen for the Project as there is capacity to avoid potential habitat for the majority of the species by avoiding areas of extensive native vegetation and known populations of threatened species. Further assessment of the habitat along potential alignments will be required to determine the potential for the Project to impact on particular species.

EPBC-listed Communities

The PMST identified five EPBC Act listed communities as potentially occurring within 10km of the Area of Interest. These communities and their likelihood of occurrence in the Area of Interest are listed in Table 7.

All EPBC listed communities have criteria that must be met to be classified as a TEC – a field assessment is required to confirm whether the criteria are met and therefore the community is present.

Table 7 EPBC listed Communities with potential to occur within the 500kV Area of Interest

EPBC Act TEC	EPBC Act conservation status	Potential EVC known along alignment	Likelihood of occurrence	Potential for impact
Grassy Eucalypt Woodland of the Victorian Volcanic Plain	Critically Endangered	Plains Grassy Woodland – VVP Grassy Woodland – VVP	High Woodlands through the Victorian Volcanic Plain Bioregion in the AOI may be of sufficient condition to satisfy condition thresholds for this community.	High Clearing of woodland areas within the Victorian Volcanic Plain that satisfy policy condition thresholds for protection.

Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Rocky Chenopod Woodland –CVU Grassy Woodland - VVP	Known Potential in area at western extent of AOI (Lexton to Bulgana region) and known to occur in the vicinity of Bacchus Marsh.	High Clearing of woodland areas and grassy former woodlands areas that satisfy policy condition thresholds for protection.
Natural Temperate Grassland of the Victorian Volcanic Plain	Critically Endangered	Plains Grassland – VVP	Known in east, moderate elsewhere within the Victorian Volcanic Plain Bioregion only.	High Clearing of grassland areas within the Victorian Volcanic Plain that satisfy policy condition thresholds for protection.
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Critically Endangered	Plains Grassy Wetland – VVP, Mapped Wetlands	High May occur in areas mapped as wetlands throughout the AOI.	Moderate Disturbance to wetlands, if any.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Grassy Woodland – VVP and CVU	Moderate Constituent species occur between Lexton and the western end of the AOI near Bulgana, though this TEC is largely restricted to areas north of the Great Dividing Range.	High Clearing of woodland areas and grassy former woodlands areas that satisfy policy condition thresholds for protection.

FFG-listed Communities

Communities listed under the FFG Act with potential to occur within the Area of Interest are listed in Table 8.

FFG communities do not have defined criteria that are required to be met but constituent species must match the description of the communities (DELWP 2018).

Table 8: FFG listed Communities with potential to occur within the 500kV Area of Interest

FFG Community	Potential EVC known along alignment	Likelihood of Occurrence
Grey Box – Buloke Grassy Woodland Community	Grassy Woodland – CVU	High – Potential to occur in vicinity of Area of Interest with Grey Box and Buloke records in the vicinity of Bacchus Marsh.
Rocky Chenopod Open-Scrub Community	Rocky Chenopod Woodland – CVU Grassy Woodland – VVP and CVU	Moderate - Potential to occur in vicinity of Bacchus Marsh where this community is known to occur.
Victorian Temperate Woodland Bird Community	Woodland EVCs – CVU	High – Is considered likely to occur based in intact woodland communities based on past

		records of core bird species in the Area of Interest.
Western (Basalt) Plains Grasslands Community	Plains Grassland - VVP	High - Potential to occur in areas of grassland between Bacchus Marsh and Sydenham.
Western Basalt Plains (River Red Gum) Grassy Woodland	Grassy Woodland - VVP	High – Potential to occur in vicinity of Area of Interest within the VVP Bioregion.

Investigation area for the new Terminal Station to the north of Ballarat

Threatened Species

The likelihood of rare and threatened species previously recorded within 10km of the investigation area for the new terminal station north of Ballarat or identified by the PMST as having potential to occur in the investigation area are listed in Attachment B. A total of 32 rare or threatened flora species and 28 threatened fauna species were considered for the investigation area for the new terminal station to the north of Ballarat. The investigation area appears to have been heavily modified and therefore is less likely to support rare and threatened species. Only three rare and threatened flora species (3 VicAdv) and 12 of the threatened wetland or migratory birds have been detected within the investigation area despite significant survey effort are listed in Table 9.

Table 9: Listed species Communities with potential to occur within the Investigation Area

Scientific name	Common Name	EPBC	FFG	VicAdv
Plants				
Dipodium pardalinum	Spotted Hyacinth-orchid			r
Discaria pubescens	Australian Anchor Plant		L	r
Bossiaea cordigera	Wiry Bossiaea			r
Fauna				
Chthonicola sagittatus	Speckled Warbler		L	vu
Ardea modesta	Eastern Great Egret		L	vu
Aythya australis	Hardhead			vu
Biziura lobata	Musk Duck			vu
Gallinago hardwickii	Latham's Snipe			nt
Lophoictinia isura	Square-tailed Kite		L	vu
Anas rhynchotis	Australasian Shoveler			vu
Engaeus merosetosus	Western Burrowing Crayfish			en
Lewinia pectoralis pectoralis	Lewin's Rail		L	vu
Falco subniger	Black Falcon			vu
Tyto novaehollandiae	Masked Owl		L	en
Litoria raniformis	Growling Grass Frog	VU	L	en

It is considered unlikely that there is extensive habitat for threatened species within the investigation area, though field assessment will be required to determine actual on ground conditions.

EPBC-listed Communities

The PMST identified five EPBC Act TECs as potentially occurring within 10km of the Investigation Area. These communities and their likelihood of occurrence within the Area of Interest are listed in Table 10.

Table 10 EPBC listed Communities with potential to occur within the Investigation Area

EPBC TEC	Potential EVC known along alignment	Likelihood of Occurrence
Grassy Eucalypt Woodland of the Victorian Volcanic Plain – Critically Endangered	Plains Grassy Woodland – VVP	Low – Patches of native vegetation as modelled are generally too small to constitute this community
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia – Endangered	None	Low – Matching EVCs are not modelled within the investigation area
Natural Temperate Grassland of the Victorian Volcanic Plain – Critically Endangered	None	Low – No Plains Grassland EVCs are predicted to occur. Any grasslands that may exist are likely to be derived grasslands and assessed as Grassy Eucalypt Woodland of the Victorian Volcanic Plain.
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains – Critically Endangered	Plains Sedgy Wetland – VVP Plains Grassy Wetland - VVP Mapped Wetlands	Moderate – May occur where mapped wetlands are present.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered	None	Low – this community is largely restricted to areas north of the Great Dividing Range. Constituent species are not known to occur within the investigation area

All EPBC listed communities have criteria that must be met to be classified as a TEC – these criteria require field assessment to be completed to determine relevance to the Project.

FFG-listed Communities

One community listed under the FFG Act with potential to occur within the Area of Interest for the new Terminal Station is listed in Table 11.

Table 11 FFG listed Communities with potential to occur within the Investigation Area

FFG Community	Potential EVC known along alignment	Likelihood of Occurrence
Western Basalt Plains (River Red Gum) Grassy Woodland	Plains Grassy Woodland – VVP	High – Potential to occur in vicinity of study area within the Victorian Volcanic Plains Bioregion

FFG communities do not have defined criteria (e.g. patch size, diversity) that are required to be met to be defined as the community but are rather constituent species and vegetation structure and compared with the published description of the communities (DELWP 2018).

If known, what threatening processes affecting these species or communities may be exacerbated by the project? (eg. loss or fragmentation of habitats) Please describe briefly.

Threatening process (as listed under the FFG Act) considered to be relevant to the Project are:

- Habitat loss and fragmentation as a threatening process for fauna in Victoria.

  May occur on a small scale as the Area of Interest is generally free of contiguous areas of habitat. Loss of habitat, where impacts cannot be avoided, are likely to occur on the edges of areas of habitat or follow existing breaks such as roads or other powerlines.

- Invasion of native vegetation by Blackberry *Rubus fruticosus L. agg*. and other 'environmental weeds'.

  Blackberry and other environmental weeds will be encountered throughout the potential construction area and protocols to manage the spread of weeds will be required to be implemented throughout the construction and operation phase of the Project to minimise potential impacts associated with the spread of weeds.

- Loss of coarse woody debris from Victorian native forests and woodlands.

  Where any impact on native forests and woodland is unavoidable, it is expected that the land within any easement along the final route has potential to be managed in such a way that logs and coarse woody debris may be removed regularly as a result of obligations to manage fire risk.

- Loss of hollow-bearing trees from Victorian native forests.

  The Project will require the removal of trees from forests, woodlands and scattered trees in agricultural landscapes and some of these will likely be hollow-bearing trees.

- Predation of native wildlife.

  This process will not be exacerbated in already cleared areas, however, where the Project is in close proximity to forested and woodland areas that support native fauna, the introduction of a newly cleared area has potential to increase the predation of native fauna.

- The spread of *Phytophthora cinnamomi* from infected sites into parks and reserves, including roadsides.

  There is potential that machinery or materials required for the Project may be contaminated with or spread existing *Phytophthora cinnamomi*. It is expected that biosecurity and weed hygiene protocols will be employed that minimise the risks associated with this process.

Are any threatened or migratory species, other species of conservation significance or listed communities potentially affected by the project?

☒ NYD ☒ No ☒ Yes If yes, please:

- List these species/communities:
- Indicate which species or communities could be subject to a major or extensive impact (including the loss of a genetically important population of a species listed or nominated for listing) Comment on likelihood of effects and associated uncertainties, if practicable.

Threatened species and communities that have potential to occur within the Area of Interest are listed above and in Attachment H. The extent of impacts to these species or communities is subject to further assessment.

Is mitigation of potential effects on indigenous flora and fauna proposed?

☒ NYD ☒ No ☒ **Yes** If yes, please briefly describe.

Transmission towers, access tracks and terminal stations will be sited to avoid impacts to native vegetation and habitat, where possible. Where avoidance is not possible, attempts will be made to minimise and mitigate impacts. Any unavoidable native vegetation removal will be offset in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* (December 2017) or another agreed arrangement.

Other information/comments? (eg. accuracy of information)

13. Water environments

Will the project require significant volumes of fresh water (eg. > 1 Gl/yr)?

☒ NYD ☒ **No** ☒ Yes If yes, indicate approximate volume and likely source.

The Project will not require significant volumes of fresh water for either its construction or operation.

Will the project discharge waste water or runoff to water environments?

☒ NYD ☒ **No** ☒ Yes If yes, specify types of discharges and which environments.

The Project will not discharge wastewater or runoff to water environments. The transmission lines and terminal stations will be constructed and operated in accordance with the relevant erosion and sediment controls to manage any discharges or runoff.

Are any waterways, wetlands, estuaries or marine environments likely to be affected?

☒ NYD ☒ No ☒ **Yes** If yes, specify which water environments, answer the following questions and attach any relevant details.

The Area of Interest traverses the catchments of the Moorabool River, Loddon River, Mount Emu Creek, Avoca River Wimmera River, Maribyrnong River, Kororoit Creek, Werribee River and crosses many smaller watercourses.

It also includes many mapped wetland areas, containing or being in close proximity (<100 m) to Lake Merrimu, Melton Reservoir, Pykes Creek Reservoir, Bostock Reservoir, Gong Reservoir, White Swan Reservoir, Newlyn Reservoir and many unnamed wetlands, though may not impact on these wetlands, depending on final design and construction.

The Area of Interest intersects or is in close proximity (<100m) to many unnamed wetlands, though may not impact on these wetlands depending on final design and construction.

It is not expected that the Project will impact on the values of wetlands other than for those where the footprint of the towers is within the mapped wetland area. Where this occurs, the construction footprint is assumed to comprise native vegetation regardless of on-ground conditions.

The PMST (DAWE, 2020) identified that the Area of Interest is located upstream of six Ramsar wetlands and downstream of one, as identified in Table 12.

Table 12 Ramsar wetlands

Wetland	Proximity	Potential Impact
Port Phillip Bay (Western Shoreline) and Bellarine Peninsula	Within 10km of Ramsar	Drainage may indirectly connect from the AOI to this Ramsar wetland via the Werribee catchment, though the project will implement appropriate drainage management such that impact to the Ramsar site, if any, would be negligible.
Banrock Station Wetland Complex	400-500km upstream	Unlikely Drainage from the AOI is not connect to the Ramsar sites
Hattah-Kulkyne Lakes	200-300km upstream	
Kerang Wetlands	150-200km upstream	
Lake Albacutya	150-200km upstream	
Riverland	400-500km upstream	
The Coorong and Lakes Alexandrina and Albert Wetland	300-400km upstream	

Potential indirect impacts of the proposed infrastructure on the Port Phillip Bay Ramsar wetland may occur due to erosion, sedimentation or fuel spills during construction via Werribee. No impact to water quality or flows to the Ramsar wetland is likely to occur given transmission line towers can be located away from tributaries leading to the wetland, and standard environmental management measures will be implemented to minimise the risk and potential impact of erosion, sedimentation or fuel spills.

The remaining Ramsar wetlands listed in Table 12 are unlikely to be impacted by the project as they are not located near to those Ramsar wetlands and drainage from the project is not connected to these areas.

Investigation area for the new Terminal Station to the north of Ballarat

The area of investigation is partly within the catchment of the Moorabool and Loddon Rivers.

There are 44 mapped wetlands within the area of investigation – primarily on private property. Depending on the chosen location, there is potential that the Project will impact on the mapped areas and values of wetlands. Where this occurs, the construction footprint is assumed to comprise native vegetation regardless of on-ground conditions.

No Wetlands of National Significance are within the investigation area for the new terminal station to the north of Ballarat.

The Port Phillip and Western Port Ramsar site is the closest Ramsar wetland to the possible site for the new Terminal Station, located approximately 68km to the east. The PMST identified a further six Ramsar wetlands are located upstream from the Area of Interest, all at least 150km away. Therefore, no impact to those wetlands is likely to occur. Potential impacts to Ramsar wetlands and mitigation measures noted above apply to the new terminal station and as such, no significant impacts to Ramsar wetlands are anticipated.

Are any of these water environments likely to support threatened or migratory species?

☒ **NYD** ☐ No ☐ Yes If yes, specify which water environments.

Investigations are currently underway as to determine whether these water environments are likely to support threatened or migratory species. Migratory species that have been recorded in the vicinity of the Area of Interest are included in Attachment H.

Are any potentially affected wetlands listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'?

☒ **NYD** ☐ No ☐ Yes If yes, please specify.

No wetlands listed under the Ramsar Convention will be affected by the Project however it is yet to be determined if any wetlands listed in 'A Directory of Important Wetlands in Australia' will be affected by the Project.

These wetlands include the Lerderderg River.

Could the project affect streamflows?

☐ NYD ☒ **No** ☐ Yes If yes, briefly describe implications for streamflows.

The Project will not affect stream flows. Towers will be sited to span over any waterways and floodplains and terminal stations will be sited to avoid areas affected by streamflow.

Could regional groundwater resources be affected by the project?

☐ NYD ☒ **No** ☐ Yes If yes, describe in what way.

Regional groundwater resources will not be affected by the Project.

Could environmental values (beneficial uses) of water environments be affected?

☒ **NYD** ☐ No ☐ Yes If yes, identify waterways/water bodies and beneficial uses (as recognised by State Environment Protection Policies)

Investigations are currently underway as to determine whether environmental values (beneficial uses) of water environments will be affected. Waterways will be avoided where possible and erosion and sediment controls will be put in place to mitigate potential impacts.

Could aquatic, estuarine or marine ecosystems be affected by the project?

☒ **NYD** ☐ No ☐ Yes If yes, describe in what way.

Investigations are currently underway as to determine whether aquatic ecosystems will be affected by the Project. Waterways will be avoided where possible and erosion and sediment controls will be put in place to mitigate potential impacts.

Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term?

☒ **No** ☐ Yes If yes, please describe. Comment on likelihood of effects and associated uncertainties, if practicable.

The Project will not have extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term. Towers will be sited where possible so lines span over waterways and terminal stations will be sited to avoid locating them in areas affected by streamflow. Erosion and sediment controls will be put in place to mitigate potential impacts.

Is mitigation of potential effects on water environments proposed?

☒ **NYD** ☐ No ☐ Yes If yes, please briefly describe.

Investigations are currently underway as to determine if there will be effects on water environments and any mitigation measures that may be required.

Other information/comments? (eg. accuracy of information)

14. Landscape and soils

14.1 Landscape

Has a preliminary landscape assessment been prepared?

☒ **No** ☐ Yes If yes, please attach.

Preparation of a preliminary landscape assessment has commenced as a key input into the assessment of alternatives for the purpose of identifying a preferred alignment.

Is the project to be located either within or near an area that is:

- **Subject to a Landscape Significance Overlay or Environmental Significance Overlay?**

☒ NYD ☒ No ☒ **Yes** If yes, provide plan showing footprint relative to overlay.

Relevant overlays within or immediately adjacent to the Area of Interest are:

Melton Planning Scheme

- ESO (Schedule 1 - Remnant Woodlands, Open Forests and Grasslands) applies to land at Ryans Lane, Melton
- ESO (Schedule 2 - Wetlands, Waterways and Riparian Strips) located along several riparian landscapes, including Kororoit Creek, Toolern Creek, Lerderderg River, Goodman Creek, Korkuperrimul Creek and Djerriwah Creek
- SLO (Schedule 1 - Volcanic Hills and Cones) which applies to Mount Kororoit

Moorabool Planning Scheme

- ESO (Schedule 1 - Proclaimed Water Catchment Areas) located to the west of Merrimu Reservoir
- ESO (Schedule 2 – Waterway Protection) located along several riparian landscapes, including Kororoit Creek, Toolern Creek, Lerderderg River, Goodman Creek, Korkuperrimul Creek and Djerriwah Creek
- ESO (Schedule 3 – Long Forest and Werribee Gorge) (Moorabool Planning Scheme)
- SLO (Schedule 1 - Scenic Ridgetops and Ridge Line Areas) - on the hilltops and ridge lines encircling Bacchus Marsh
- SLO (Schedule 2 - Gordon Town Centre, Township and Surrounds) which applies to the village of Gordon

Hepburn Planning Scheme

- SLO (Schedule 1 - Volcanic Peaks Landscape Area, Ridges and Escarpments Area and Sites of Geological Significance) which apply to several peaks or craters within the Volcanic Peaks Landscape Area

Ballarat Planning Scheme

- SLO (Schedule 1 - Mount Bolton) which applies to several formations associated with Mount Bolton and granitic outcrops

These overlays are shown in Attachment D.

- **Identified as of regional or State significance in a reputable study of landscape values?**

☒ NYD ☒ No ☒ **Yes** If yes, please specify.

The Planisphere (2013) 'South West Victorian Landscape Assessment Strategy' (SWLVAS) seeks to better understand the significance of the visual and landscape character across south west Victoria, which includes the municipalities of Ballarat, Hepburn, Moorabool and Pyrenees within the Area of Interest. The landscapes in the regions are diverse and include volcanic plains and cones that dominate much of the area, to the Great Dividing Range in the north and the Grampians in the central west.

The following landscapes have been identified by the SWVLAS as being of either State or regional significance and are within or immediately adjacent to the Area of Interest for the Project:

Western Volcanic Plain: 1.10 - Hepburn Gold Mines & Volcanic District (State Significance)

The Hepburn Gold Mines & Volcanic District features a dense cluster of rounded volcanic rises scattered across the rolling landscape.

Interspersed between the rises are numerous steep sided mullock heaps, leftovers from the era of deep lead gold mining. These mounds tower out of the paddocks and remain largely intact despite being exposed to weathering for over a century. In addition, the ruins of the mine buildings are highly evocative of the gold mining heritage that shaped this region and had a wide-ranging impact upon Victoria's early development.

The Uplands: 2.1 - Lerderderg Gorge and State Park (State Significance)

A landscape of forested hills through which the Lerderderg River has cut through sandstone and slate to create a deep gorge with walls rising to 400m and exposed rocky cliffs. This gorge stretches south to the flat volcanic plains near Bacchus Marsh. The Lerderderg River weaves through this landscape past rocky boulders and sandy beaches.

Within the park the folding, hilly topography surrounding the Lerderderg Gorge is blanketed in thick vegetation with some exposed rocky outcrops. The landscape is wild and rugged, most of it accessible only by foot.

The Uplands: 2.3 – Werribee Gorge (State Significance)

The formation of the Werribee Gorge slices through the surrounding cleared plateau to the west of Bacchus Marsh. The gorge retains a rugged aesthetic of exposed craggy rock faces, native bushland, the Werribee river and steep sided valley walls.

Edges of this landscape are defined by topography and vegetation. Cleared plains give way suddenly to steep vegetated valley walls and exposed rock faces. Colours and textures deepen and become more exaggerated towards the base of the gorge.

The Uplands: 2.4 – Bacchus Marsh Agricultural Valley (Regional Significance)

This landscape comprises the lush and colourful market gardens on the valley floors near Bacchus Marsh, in parts that are edged by steep valley walls of the surrounding gorges.

Views of it are filtered through the impressive Avenue of Honour that forms the main entrance to Bacchus Marsh from the Western Freeway and along the Werribee Vale Road.

The Uplands: 2.12 Island Uplands (Regional Significance)

The Island Uplands rise as three individual landforms (Mount Beckworth, Mount Bolton and Mount Ercildoune) from the northern edges of the Western Volcanic Plain. Their prominence is visible from long distances away. The Waubra wind farm is sited to the east of the rises and the tops of turbines are a visible feature in many parts of this landscape.

The granitic outcrops and tors on the slopes of the Island Uplands are an outstanding feature that provides additional visual interest. Edges of pine plantation also provide a contrast, though this has resulted in ugly scarring on the landscape where they have been felled in a number of places.

- **Within or adjoining land reserved under the *National Parks Act 1975*?**

☒ NYD ☒ No ☒ **Yes** If yes, please specify.

The Area of Interest is partly within or adjoining the following land reserved under the National Parks Act 1975:

- Partly within and adjoining the Lerderderg State Park
- Adjoining the Werribee Gorge State Park
- Adjoining the Brisbane Ranges National Park

- **Within or adjoining other public land used for conservation or recreational purposes?**

☒ NYD ☒ No ☒ **Yes** If yes, please specify.

The Area of Interest contains or is adjacent to many areas of public land used for conservation or recreation purposes including but not limited to:

- MacPherson Park and Melton Equestrian Park
- Long Forest Nature Conservation Reserve
- Merrimu Reservoir Picnic Area
- Lerderderg State Park
- Historic Djerriwarrh Bridge Picnic Area
- Melton Reservoir
- Robert Vance Moon Reserve
- Bacchus Marsh Golf Club
- Werribee Gorge State Park
- Brisbane Ranges State Park
- Pykes Creek Reservoir
- White Elephant Reserve, Glenmore
- Yaloak Polo Club
- Bostock Reservoir Picnic Ground
- Ballan Racecourse Reserve
- Glen Park State Forest
- Creswick Regional Park
- Newlyn Recreation Reserve
- Mount Beckworth Scenic Reserve
- Ben More Bushland Reserve
- Amphitheatre Bushland Reserve
- Joel Nature Conservation Reserve

These areas are shown in Attachment B.

Is any clearing vegetation or alteration of landforms likely to affect landscape values?

☒ NYD ☒ No ☒ **Yes** If yes, please briefly describe.

No alterations of landforms are proposed to be associated with the Project, however there will be some clearing of vegetation required for the transmission lines which could affect landscape values.

Is there a potential for effects on landscape values of regional or State importance?

☐ NYD ☐ No ☒ **Yes** Please briefly explain response.

There is potential for effects on those landscape values of regional or State importance described above because of the scale of Project elements, including the height of the transmission lines and the consequent extensive viewshed.

A viewshed defines the area or distance from the Project where the key features may be a recognisable element within a view. This distance is established based on the height of the key Project features and the parameters of the human vision.

The theoretical extent of the viewshed can be considered to extend to a distance at which the tallest component of the Project would take up less than 5% of the vertical field of view. Typically, the vertical field of view of a person is 10°, whereby 5% of the vertical field of view is approximately equal to 0.5°.

For this Project, the viewshed will be based upon the conservative tower heights of 75m for the 500kV section and 60m for the 220kV section.

The distance at which a 75m tower in the landscape would take up 5% (0.5°) of the vertical field of view, in the absence of screening by intervening topography, vegetation or structures is 8.6 km. The viewshed of the 500kV transmission line would therefore consider the area within 8.6 km of the Project centre line.

The distance at which a 60m tower in the landscape would take up 5% (0.5°) of the vertical field of view, in the absence of screening by intervening topography, vegetation or structures is 6.87km. The viewshed of the 220kV transmission line would therefore be 6.9 km.

Is mitigation of potential landscape effects proposed?

☐ NYD ☐ No ☒ **Yes** If yes, please briefly describe.

It is recognised that large towers can be unavoidably visible and will often contrast with the environments in which they are situated. The assessment and approvals process is required to give consideration to the acceptability of impacts on landscape values, the amenity of communities and residential dwellings and the ability of mitigation options to manage these impacts.

Mitigation options available to manage visual impact from locations that are considered to be significantly visually affected by a Project include:

- Screen planting around terminal stations, buildings and lower infrastructure
- Re-siting to locations where they will have less visual impact
- Non reflective coating of structures.

Other information/comments? (eg. accuracy of information)

Note: A preliminary landscape assessment is a specific requirement for a referral of a wind energy facility. This should provide a description of:

- The landscape character of the site and surrounding areas including landform, vegetation types and coverage, water features, any other notable features and current land use;

- The location of nearby dwellings, townships, recreation areas, major roads, above-ground utilities, tourist routes and walking tracks;

- Views to the site and to the proposed location of wind turbines from key vantage points (including views showing existing nearby dwellings and views from major roads, walking tracks and tourist routes) sufficient to give a sense of the overall site in its setting.

14.2 Soils

Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils?

☐ NYD ☐ No ☒ **Yes** If yes, please briefly describe.

The construction of tower foundations and access roads could potentially impact on land stability, acid sulphate soils or highly erodible soils. However, the intention is to site Project infrastructure in locations which would not impact on susceptible areas.

Are there geotechnical hazards that may either affect the project or be affected by it?

☒ **NYD** ☐ No ☐ Yes If yes, please briefly describe.

Investigations are currently underway as to determine whether there are potential geological hazards that may affect the Project or be affected by it.

Other information/comments? (eg. accuracy of information)

15. Social environments

Is the project likely to generate significant volumes of road traffic, during construction or operation?

☒ **NYD** ☐ No ☐ Yes If yes, provide estimate of traffic volume(s) if practicable.

The Project will generate traffic during construction however, the exact volumes are yet to be determined and whether they are significant will be confirmed when a preferred alignment is determined. As a linear project, construction activities will move along the alignment during construction.

Is there a potential for significant effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions?

☐ NYD ☐ No ☒ **Yes** If yes, briefly describe the nature of the changes in amenity conditions and the possible areas affected.

The Project has the potential for significant effects on the amenity of residents, due to visual impact from the construction of the transmission line, in particular the 500kV transmission line.

No significant effects are expected as a result of dust, noise or traffic conditions but assessments will be carried out to assess the potential impacts and develop mitigation strategies.

Is there a potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport?

☐ NYD ☐ No ☒ **Yes** If yes, briefly describe the hazards and possible implications.

There is potential for adverse effects on the amenity of nearby residents due to emissions of noise during construction of the terminal stations, towers and access tracks depending on the geology of the area. However, construction is only proposed during daytime hours and good management practices are expected to be able to mitigate the effects to an acceptable level.

Air, water, noise and traffic assessments will be carried out to assess the potential impacts and develop mitigation strategies.

Is there a potential for displacement of residences or severance of residential access to community resources due to the proposed development?

☐ NYD ☐ No ☒ **Yes** If yes, briefly describe potential effects.

There may be potential for severance of access to some residences for short periods (hours rather than days) during construction.

Are non-residential land use activities likely to be displaced as a result of the project?

☒ **NYD** ☐ No ☐ Yes If yes, briefly describe the likely effects.

The site of the new terminal station to the north of Ballarat is yet to be determined however, it is expected that there would be displacement of a non-residential land use, probably agriculture. An area of approximately 600m by 400m is required for the terminal station. Further assessment is required to understand how the land is currently used and where the terminal station can be situated to minimise the extent of impact.

There is the potential for impacts to harvesting depending on the timing of construction of the transmission lines. While these impacts will seek to be minimised, they will mostly be temporary however there will be some permanent land required to accommodate easements. During construction, impacts are likely to be limited to one season only (tower construction takes approximately 2 weeks). Grazing, cropping and other agricultural activities can continue within overhead line easements following construction. Further land use assessment will be undertaken to assess impacts during construction, operation and maintenance.

Do any expected changes in non-residential land use activities have a potential to cause adverse effects on local residents/communities, social groups or industries?

☒ **NYD** ☐ No ☐ Yes If yes, briefly describe the potential effects.

There are not expected to be adverse effects on local residents/communities, social groups or industries as a result of changes in non-residential land use activities however this will depend on the width of the easement and temporary construction areas.

Is mitigation of potential social effects proposed?

☐ NYD ☐ No ☒ **Yes** If yes, please briefly describe.

An assessment of social impacts and mitigation of social effects is required and will occur as part of the planning phase of the Project.

Other information/comments? (eg. accuracy of information)

15.1 Cultural heritage

Have relevant Indigenous organisations been consulted on the occurrence of Aboriginal cultural heritage within the project area?

☒ **No** If no, list any organisations that it is proposed to consult.

☐ Yes If yes, list the organisations so far consulted.

The relevant Registered Aboriginal Parties and Traditional Owner Groups listed below and Aboriginal Victoria have been briefed about the Project.

- Barengi Gadjin Land Council Aboriginal Corporation
- Boon Wurrung Foundation
- Bunurong Land Council Aboriginal Corporation
- Dja Wurrung Clans Aboriginal Corporation
- Eastern Maar Aboriginal Corporation
- Martang Pty Ltd
- Wathaurung Aboriginal Corporation
- Wurundjeri Woi-Wurrung Cultural Heritage Aboriginal Corporation

What investigations of cultural heritage in the project area have been done?

(attach details of method and results of any surveys for the project & describe their accuracy)

A desktop register search as outlined below.

Is any Aboriginal cultural heritage known from the project area?

☐ NYD ☐ No ☒ **Yes** If yes, briefly describe:

- Any sites listed on the AAV Site Register
- Sites or areas of sensitivity recorded in recent surveys from the Project site or nearby
- Sites or areas of sensitivity identified by representatives of Indigenous organisations

A search of the Aboriginal Cultural Heritage Register and Information System (ACHRIS), the online tool used to access the Victorian Aboriginal Heritage Register (VAHR) under the *Aboriginal Heritage Act 2006*, was undertaken in February 2020.

The Area of Interest contains hundreds of areas of cultural heritage significance, associated with Aboriginal places, named waterways and volcanic cones.

Hundreds of previously registered Aboriginal places, including artefact scatters, low density artefact distributions, scar trees, earth features, quarries, and object collections are located throughout the Area of Interest. These places are located across the landscape but can be found in greater densities along waterways, ridgelines or on top of stony rises or elevated land. Previously registered Aboriginal places are particularly prevalent near to waterways such as the

Maribyrnong River, Kororoit Creek, Werribee River and Moorabool River and where large remnant vegetation exists in reserves such as Organ Pipes National Park, Long Forest Nature Conservation Reserve and Lerderderg State Park. Distinct volcanic features in the landscape such as Mount Cottrell, Mount Kororoit and Mount Atkinson volcanic cones are known areas of Aboriginal cultural heritage sensitivity for both tangible and intangible values. Plans have not been prepared showing this information due to the sensitivities with the sharing of information associated with aboriginal cultural heritage.

Briefings have been undertaken with the relevant Registered Aboriginal Parties and Traditional Owner Groups. At this stage, eight Cultural Heritage Management Plans (CHMPs) are intended to be prepared for this Project. The Notices of Intent are intended to be issued in June 2020 in the Bulgana to Waubra 220kV section to enable the formal processes associated with the CHMPs to commence.

Are there any cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the *Heritage Act 1995* within the project area?

☒ NYD ☒ No ☒ **Yes** If yes, please list.

The following heritage registers were searched in February 2020 to determine the registered historical heritage places present within the Area of Interest:

- Victorian Heritage Register under the Heritage Act 2017
- Victorian Heritage Inventory under the Heritage Act 2017
- Commonwealth Heritage List under the EPBC Act
- National Heritage List under the EPBC Act
- Register of the National Estate
- Heritage Overlays within relevant Planning Schemes.

No places within the Commonwealth Heritage List, National Heritage List or Register of the National Estate were recorded within the Area of Interest.

As noted earlier, the Area of Interest contains places on the Victorian Heritage Register, Victorian Heritage Inventory and Heritage Overlays within the relevant Planning Schemes. These include, but are not limited to, homesteads, dry stone walls, mining sites, township buildings, churches, railway bridges and embankments, war memorials and Avenues of Honour.

These places are shown in Attachment I.

No places within the Commonwealth Heritage List, National Heritage List or Register of the National Estate were recorded within the Area of Interest. The closest Commonwealth heritage places are located approximately 8km south east of the nearest point of the Area of Interest are the Officer's Mess, Eastern Hangars and West Workshops Precincts at RAAF Williams Laverton Base.

The closest National heritage place to the Area of Interest is the Eureka Stockade Gardens, located approximately 3.5km south west of the closest part of the Area of Interest.

Is mitigation of potential cultural heritage effects proposed?

☒ NYD ☒ No ☒ **Yes** If yes, please briefly describe.

Registered Aboriginal Places will be avoided wherever possible, particularly for towers, access tracks and ancillary services and activities such as the construction compound sites.

All areas of Cultural Heritage Sensitivity (CHS) are of high concern as they are more likely to contain unidentified Aboriginal places. The alignment will seek to avoid areas of CHS and registered Aboriginal Places; areas and places that cannot be avoided will be addressed during the CHMP process.

It is highly likely that any places on the Heritage Register under the *Heritage Act 2017* can be avoided. Places on the Heritage Inventory under the *Heritage Act 2017* or areas with a Heritage Overlay within a relevant Planning Scheme will also be avoided wherever possible.

Other information/comments? (eg. accuracy of information)

In addition to the above, a submission is currently being prepared by a consortium of Councils in Central Victoria to formulate a serial nomination of a collection of places related to the Victorian Goldfields for inscription in the UNESCO World Heritage List. The preparation of the submission is in its early stages and the extent of the nomination is yet to be scoped.

16. Energy, wastes & greenhouse gas emissions

What are the main sources of energy that the project facility would consume/generate?

Electricity network. If possible, estimate power requirement/output

The Project will not generate or consume any electrical energy.

☒ Natural gas network. If possible, estimate gas requirement/output

Not applicable

☒ Generated on-site. If possible, estimate power capacity/output

Not applicable

☒ Other. Please describe.

Please add any relevant additional information.

There will be emissions associated with operation of equipment and vehicles, however these are yet to be determined.

What are the main forms of waste that would be generated by the project facility?

☒ Wastewater. Describe briefly.

☒ Solid chemical wastes. Describe briefly.

☒ Excavated material. Describe briefly.

☒ Other. Describe briefly.

Please provide relevant further information, including proposed management of wastes.

The majority of waste will be generated during the construction phase of the Project. The main construction waste types are concrete, wood pallets, aluminium / copper conductor and control cable off cuts. Material excavated during construction, would be either reused where practicable or removed off site. Detailed design will be used to appropriately site towers and the terminal stations to minimise the extent of cut and fill required and maximise the ability to reuse excavated material for site rehabilitation.

If material is contaminated, it will be appropriately treated and / or moved off-site to a licenced landfill facility.

Wastewater generated on site will be limited to sewage from onsite facilities for the construction workforce. Temporary onsite sewage collection and storage facilities will be installed and pumped out for off-site disposal at an appropriate facility to avoid risks to groundwater. General refuse generated will be managed as identified in a Construction Environmental Management Plan to be developed by the Construction Contractor in collaboration with AusNet Services.

There will be two transformers installed at the new terminal station north of Ballarat. Each transformer will be filled with approximately 61,000L of oil prior to commissioning. Four shunt reactors will be installed (two at the new terminal station to the north of Ballarat and two at the new North Sydenham Terminal Station) which have around 36,000Lof oil each. The transformers and shunt reactors will be in bunds designed in accordance with the EPA *Liquid storage and handling guidelines* June 2018. During operation, Polychlorinated biphenyl (PCBs) can build up over time in the transformers and shunt reactors however the equipment is a closed loop system. Only when decommissioning equipment at end of design life does the oil need to be removed. Waste oil will be treated and disposed of in accordance with Environmental Protection (Industrial Waste Resource) Regulations 2009. Transformers and shunt reactors have a design life of 45 years but can last beyond this if the asset is managed well.

During operation, the transmission lines and terminal stations will not generate any significant volume of waste.

What level of greenhouse gas emissions is expected to result directly from operation of the project facility?

- [x] **Less than 50,000 tonnes of CO_2 equivalent per annum**
- [ ] Between 50,000 and 100,000 tonnes of CO_2 equivalent per annum
- [ ] Between 100,000 and 200,000 tonnes of CO_2 equivalent per annum
- [ ] More than 200,000 tonnes of CO_2 equivalent per annum

Please add any relevant additional information, including any identified mitigation options.

The emission of greenhouse gas will be limited however further information will be provided following identification of a preferred corridor.

17. Other environmental issues

Are there any other environmental issues arising from the proposed project?

☐ No ☒ **Yes** If yes, briefly describe.

Other potential issues/impacts associated with the Project may include electromagnetic interference and radiation, and aviation impacts. Specialist studies on these areas as they relate to the Project will be undertaken to understand these issues in detail.

Similarly, bushfire risks to the Project will be subject to further investigation however it is worth noting that AusNet Services has a 'Bushfire Risk Mitigation Plan - Electricity Transmission Network 2019' that explains how the electricity transmission network is managed to mitigate bushfire risk and provide customers with a reliable and safe electricity supply (available at: https://www.ausnetservices.com.au/-/media/Files/AusNet/About-Us/Publications/BFM-1002-BFM-Plan-Transmission-v18-resent.ashx?la=en).

18. Environmental management

What measures are currently proposed to avoid, minimise or manage the main potential adverse environmental effects? (if not already described above)

☒ Siting: Please describe briefly

Avoiding dwellings and other sensitive receptors, native vegetation, habitat for threatened species and communities, areas of landscape significance, sites and areas of environmental significance and places of cultural heritage significance, wherever practicable.

☒ Design: Please describe briefly

Refer to Section 4

☒ Environmental management: Please describe briefly.

Developing environmental management measures for project construction and operation to minimise noise from electrical infrastructure, noise from construction activities, dust from construction activities and impacts on flora, fauna and cultural heritage during construction and operation to the maximum extent possible. Plans to be prepared, but not limited to include Cultural Heritage Management Plans, Construction Environment Management Plans and an Offset Management Plan.

☐ Other: Please describe briefly

Add any relevant additional information.

19. Other activities

Are there any other activities in the vicinity of the proposed project that have a potential for cumulative effects?

☒ NYD ☒ No ☒ **Yes** If yes, briefly describe.

Cumulative activities identified to date, but not limited to, are discussed as follows.

Visual Impact

Cumulative visual impact can be defined as the combined effect of changes brought about by a proposed development in conjunction with other similar developments in an area. Cumulative visual impacts may result in changes to the perceptions of the local community or a visitor to the region due to the presence of multiple transmission lines and/or substations in the Project area. Cumulative visual impacts can occur through either:

- Sequential and simultaneous views to one or more project in an area from publicly accessible viewpoints from the surrounding road network; or
- Simultaneous views of multiple projects from private viewing locations.
- The greatest potential for cumulative visual impacts to occur is in areas where the viewshed (distance at which a project is a discernible visual feature) of one more constructed or approved wind farms and their associated infrastructure and electrical transmission projects overlap.

A description of this existing infrastructure follows.

Existing High Voltage Transmission Lines

The Project includes a duplication of the existing 220kV Horsham to Ballarat transmission line between the Waubra and Bulgana Terminal Stations.

The easternmost section of the Project includes a 500kV connection to the proposed North Sydenham Terminal Station next to the existing Sydenham Terminal Station. The Sydenham Terminal Station currently includes connections to the 500kV Moorabool Terminal Station to Sydenham Terminal Station, the 500kV Sydenham Terminal Station to Keilor Terminal Station and the 500kV Sydenham Terminal Station to South Morang Terminal Station.

The existing 220kV Ballarat to Bendigo transmission line intersects the proposed new Terminal Station area of investigation, where the proposed 220kV and 500kV transmission line sections meet.

Existing Utility Scale Terminal Stations

A number of utility scale Terminal Stations exist within the Area of Interest which include, but are not limited to, Sydenham, Waubra, Ballarat, Elaine, Bulgana and Crowlands.

Other potential cumulative impacts could relate to biodiversity, historic and aboriginal cultural heritage and social. Each of the specialist assessments for the Project will include an assessment of cumulative impacts as it relates to the Project.

20. Investigation program

20.1 Study program

Have any environmental studies not referred to above been conducted for the project?

☐ No ☒ **Yes** If yes, please list here and attach if relevant.

Further desktop investigations are underway and information being sought regarding the Area of Interest from the Councils, agencies and the community to help inform areas for further investigation, and in due course, a preferred alignment.

Has a program for future environmental studies been developed?

☐ No ☒ **Yes** If yes, briefly describe.

The assessments listed In Table 13 will be undertaken to understand the impacts on the Project.

Table 13 List of Technical Assessments

Technical Assessments		
Aboriginal heritage	Climate change	Historic heritage
Acoustics and vibration	Economic	Landscape and visual
Agriculture and Forestry	Electromagnetic interference and radiation (EMI/ EMR)	Land use and planning
Air quality	Environmental Management Framework	Social
Aviation	Environmental risk assessment	Surface water
Biodiversity	Geotech and contaminated land	Traffic
Bushfire and fire risk response	Groundwater	

20.2 Consultation program

Has a consultation program been conducted to date for the project?

☐ No ☒ **Yes** If yes, outline the consultation activities and the stakeholder groups or organisations consulted.

AusNet Services have commenced consultation with landowners and occupiers, Councils and relevant agencies. Communication and engagement activities will be tailored to suit the community and stakeholder preferences in the Project area.

Stakeholder engagement continues with over 70 stakeholder briefing and meetings occurred so far via video-conferencing during Covid-19.

Due to the Covid-19 global pandemic, in March 2020 AusNet Services temporarily postponed some face to face community engagement activities such as community information sessions and pop ups at shopping centres and markets. A revised approach has been prepared which increases online engagement activities, while ensuring extensive communication through traditional print and media channels.

Please refer to the attached consultation summary of activities and stakeholder groups consulted (Attachment G).

Has a program for future consultation been developed?

☒ NYD ☒ No ☒ **Yes** If yes, briefly describe.

In June 2020, community engagement will commence and input will be sought via a wide range of channels including an online engagement platform integrated into the project website (https://www.westvictnp.com.au/), which supports 24/7 interactive feedback mechanisms including:

- Interactive mapping tool that allows community members to share location based local knowledge and feedback
- Online forums
- Interactive question and answers
- Online surveys
- Briefing sessions (online)

A Council Advisory Group with western Victorian councils located within the area of interest and a Community Reference Groups with interested, representative community stakeholders will be formed.

Key communication channels include the Project website/online engagement platforms, telephone hotline and email, post cards and mailouts, posters, print, radio advertisement, social media platforms, geotargeted social media posts, project videos, meet the team videos, factsheets and newsletters. Please refer to Attachment G for further details.

Authorised person for proponent:

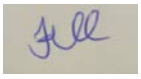
I, Francisco Vizcaino, Project Director, confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature _____

Date 9 June 2020

Person who prepared this referral:

I, Tara Horsnell, Planning and Approvals Lead, confirm that the information contained in this form is, to my knowledge, true and not misleading.



Signature _____

Date 9 June 2020

Attachment A: Area of Interest

Attachment B: Detailed Map of the Area of Interest

Attachment C: Protected Areas/Reserves

Attachment D: Zone and Overlay Plans

Attachment E: Biodiversity Plans

Attachment F: Public and Private land

Attachment G: Stakeholder engagement overview

Attachment H: Rare and threatened species records within 10km of proposed alignments and NBTS investigation area and Rare and Threatened Flora known to occur in or in close proximity to the Area of Interest.

Attachment I: Heritage Places